BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 02.94 Replaces Test oil : ISO-4113 Combination no. : 0 402 736 838 Injection pump Pump designation : PES6P120A120RS7275 EP type number : 0 412 726 886 Governor Governor design. : RQV400...1250PA964 -16K : 0 421 815 334 Governer no. Customer—spec. information Customer : C.D.C. Engine : 6BTA-A 1st version kW : 119.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 105...125 Test nozzle holder assembly : 1 688 901 103 **Opening** : 207...210 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Fest pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 13.40...13.50 Del.quantity cm3/: 15.3...15.5 100 s: (15.0...15.8) Spread cm3 : 0.8 100 s: (1.2) rpm : 400 2nd speed Rack travel in mm: 6.0...6.4 Del.quantity cm3/: 1.4...2.0 100 s: (1.2...2.2) cm3 : 0.4Spread 100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 400 : 1.40...1.60 travel mm 2nd speed 500 rpm travel mm 2.30...2.70 3rd speed : 800 rpm : 4.80...5.20 travel mm 4th speed : 1250 rpm : 6.90...7.10 travel mm : 1500 5th speed rpm : 8.30...8.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 1200 Del.quantity : 152.5...157.5) Spread : 8.00 cm3

1000

: (12.00)

RATED SPEED 1st version Control lever

position degrees: 110...122

Testing:

1st rack travel in: 12.40 rpm : 1310...1340 Speed 2nd rack travel in: 4.00

Speed rpm : 1560...1570 4th rack travel in: 1675

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 65...77 Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6.2

Testing:

Speed rpm: 300 Minimum rack trave: 7.70 ripm : 400

Rack travel in mm : 6.00...6.40

CONSTANT REGULATION

rpm : 325...519 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 1250 Rack travel in m: 13.40...13.50

2nd speed rpm : 900

Rack travel in m: 12.00...12.40

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 1250 rom Pressure hPa : 1200 Rack travel mm : 13.40...13.50

Measurement

1/min: 1250 Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.70

2nd pressure hPa : 265
Rack travel in m: 11.10...11.20
3rd pressure hPa : 440

Rack travel in m: 12.70...13.10

START CUT-OUT

Speed 1/min: 250 (260)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 900 Speed

Del.quantity cm3/: 130.5...136.5 1000 s: (127.5...139.5) Spread cm3: 8.00

1000 s: (12.0)

Aneroid pressure h: rpm_ : 1250 Speed

Del.quantity cm3/: 108.5...112.5

1000 s: (106.5...114.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40

rpm : 1310...1340 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 450

Rack travel in mm : 6.00...6.40 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0)

Spread cm3 : 4.00

1000 s: (8.00)

Remarks:

: FB-BLOCK. 6.25° NACH

: /AFTER FB ZYL. 1

: C.D.C. # 392 1918

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM Test sheet Edition : 02.94 Replaces Test oil : ISO-4113 : 0 402 736 838 Combination no. Injection pump Pump designation : PES6P12DA12ORS7275 EP type number : 0 412 726 886 Governor Governor design. : RQV400...1250PA964 -19KGoverner no. : 0 421 815 342 Customer-spec. information Customer : C.D.C. Engine : 6BTA-A 1st version kW : 130.5 : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 105...125 Test nozzle holder : 1 688 901 103 assembly Opening pressure, bar : 207...210 Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Prestroke mm : 3.55...3.65 : (3.50...3.70) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 13.40...13.50 Del.quantity cm3/: 15.9...16.1 100 s: (15.6...16.4) Spread cm3 : 0.8100 s: (1.2) rpm : 400 2nd speed Rack travel in mm: 5.9...6.3 Del.quantity cm3/: 1.4...2.0 100 s: (1.2...2.2) cm3 : 0.4Spread 100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 400 : 1.30...1.50 travel mm 2nd speed 500 rpm 2.30...2.70 travel mm 3rd speed : 800 rpm : 4.80...5.20 travel mm rpm : 1250 4th speed : 6.90...7.10 travel mm 5th speed : 1500 rpm travel mm : 8.30...8.70 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1250 Aneroid pressure h: 1200 : 159.5...161.5 Del.quantity 1000 : (156.5...164.5) : 8.00 Spread cm3 1000 : (12.00)

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

RATED SPEED 1st version Control lever position degrees: 111...123 Testing: 1st rack travel in: 12.40 rpm : 1300...1330 Speed 2nd rack travel in: 4.00 rpm : 1560...1570 Speed 4th rack travel in: 1675 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 65...77 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 6.10 Testina: rpm : 300 Speed Minimum rack trave: 7.40 rpm : 400 Speed Rack travel in mm : 5.90...6.30 CONSTANT REGULATION rpm : 325...519 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 13.40...13.50 rpm : 900 2nd speed Rack travel in m: 12.00...12.20 rpm : 500 3rd speed Rack travel in m: 11.30...11.70 Aneroid/Altitude Compensator Test 1st version Setting : 1250 Speed man hPa : 1200 Pressure Rack travel mm : 13.40...13.50 Measurement 1/min: 1250 Speed 1st pressure hPa : -Rack travel in m: 10.20...10.60 2nd pressure hPa : 260 Rack travel in m: 11.30...11.40 3rd pressure hPa : 430

Rack travel in m: 12.80...13.20

START CUT-OUT 1/min: 250 (260) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 900 Del.quantity cm3/: 135.0...141.0 1000 s: (132.0...144.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: rpm_ : 1250 Speed Del.quantity cm3/: 110.0...114.0 1000 s: (108.0...116.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.40 Speed rpm : 1300...1330 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm: 13.00...14.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.90...6.30 Del.quantity cm3/: 14.0...20.0 1000 s: (12.0...22.0) cm3 : 4.00Spread 1000 s: (8.00) Remarks: : FB-BLOCK. 6.25° NACH : /AFTER FB ZYL. 1 : C.D.C. # 392 1920

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 02.94 : 07.93 Replaces : ISO-4113 Test oil Combination no. : 0 402 736 844 Injection pump Pump designation : PES6P120A120RS7287 EP type number : 0 412 726 896 Governor : RQV400...1250PA964 Governor design. -21K Governer no. : 0 421 815 354 Customer-spec. information Customer : C.D.C. Engine : 68TA-A 1st version kW : 171.0 Rated speed : 2500 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 086 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 90...110 Test nozzle holder : 1 688 901 103 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0.7 Test lines : 1 680 750 015

: 3.55...3.65 : (3.50...3.70) Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1150 Rack travel in mm: 15.00...15.10 Del.quantity cm3/: 19.9...20.1 100 s: (19.6...20.4) Spread cm3 : 0.8100 s: (1.2) rpm : 400.02nd speed Rack travel in mm : 6.1...6.5 Del.quantity cm3/ : 1.5...2.1 100 s: (1.3...2.3) cm3 : 0.4Spread 100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 400 1st speed : 1.40...1.60 travel mm 2nd speed rpm : 550 : 3.10...3.50 travel mm 3rd speed rpm : 800 : 4.30...4.70 travel mm rpm : 1250 4th speed : 7.00...7.20 travel mm rpm : 15005th speed : 9.20...9.60 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1150 Aneroid pressure h: 1200 Del.quantity : 199.0...201.0 1000 : (196.0...204.0)

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 22...24

Outside diameter x Wall thickness

x Length mm

: 6.00x3.00x600

(A) Injection pump setting values

Set equal delivery quant.

per values ___

Insp. values in parentheses

Spread cm3 : 8.00 1000 : (12.00) RATED SPEED 1st version Control lever position degrees: 114.0...122.0 Testing: 1st rack travel in: 13.50 Speed rpm : 1310...1320 2nd rack travel in: 4.00 rpm : 1460...1490 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 68.0...76.0 Testing: Speed rpm : 300 Minimum rack trave: 7.80 rpm : 400 Rack travel in mm : 6.10...6.50 CONSTANT REGULATION rpm : 325...521 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 15.00...15.10 rpm : 900 2nd speed Rack travel in m: 14.30...14.50 rpm : 600 3rd speed Rack travel in m: 13.20...13.60 4th speed rpm : 1250 Rack travel in m: 14.50...14.70 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1150 rpm hPa : 1200 Pressure Rack travel mm : 15.00...15.10

Measurement 1/min: 1150 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.50 2nd pressure hPa : 355 Rack travel in m: 11.30...11.40 3rd pressure hPa : 645 A06

Rack travel in m: 13.30...13.70 START CUT-OUT 1/min : 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 900 Speed Del.quantity cm3/: 183.0...189.0 1000 s: (180.0...192.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: rpm : 1150 Speed Del.quantity cm3/: 94.5...98.5 1000 s: (92.5...100.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.50 rpm : 1310...1320 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack travel in mm : 12.00...13.00 LOW IDLE rpm : 400 cm3 : 4.00

Speed Rack travel in mm : 6.10...6.50 Del.quantity cm3/: 15.0...21.0 1000 s: (13.0...23.0)

Spread 1000 s: (8.00)

Remarks:

: C.D.C. # 3921925

Mark position of port-opening mark 6.25° before port opening cylinder 1 on clutch

: 3.55...3.65 : (3.50...3.70) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-4 Test sheet : CUM Edition : 02.94 Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Phasing Combination no. : 0 402 736 846 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6P120A120RS7287 EP type number : 0 412 726 896 BASIC SETTING Governor Governor design. : RQV400...1250PA1081K 1st speed rpm: 1250 : 0 421 815 360 Governer no. Rack travel in mm : 13.80...13.90 Customer-spec. information Customer : C.D.C Del.quantity cm3/: 17.2...17.4 Engine : 6BTA-A 100 s: (16.9...17.7) 1st version kW : 156.0 Spread cm3 : 0.8Rated speed : 2500 100 s: (1.2) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Test oil Rack travel in mm: 6.0...6.4 inlet temp. °C : 38...42 Del.quantity cm3/: 1.8...2.4 100 s: (1.6...2.6) Overflow valve cm3 : 0.4Spread : 2 417 413 086 100 s: (0.8) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Overflow quantity min. 1/h: 90...110 GUIDE SLEEVE TRAVEL 1st speed rpm : 400 Test nozzle holder : 1.40...1.60 travel mm assembly : 1 688 901 103 2nd speed rpm : 550 : 3.10...3.50 travel mm Opening 3rd speed : 800 rpm pressure, bar : 207...210 : 4.30...4.70 travel mm : 1250 4th speed rpm : 7.00...7.20 travel mm Test lines : 1 680 750 015 5th speed : 1500 man : 9.20...9.60 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP : 6.00x1.50x600 x Length mm 1st version (A) Injection pump setting values rpm : 1250 Speed Insp. values in parentheses Aneroid pressure h: 1200 : 172.5...174.5 1000 : (169.5...177.5) Set equal delivery quant. Del.quantity per values ____ Spread cm3 : 8.00 BEGINNING OF DELIVERY 1000 : (12.00) Test pressure, bar: 22...24

RATED SPEED

1st version Control lever

position degrees: 112...124

Testina:

1st rack travel in: 12.80

Speed rpm : 1315...1345 2nd rack travel in: 4.00

rpm : 1480...1490 Speed

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 66...78

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6.2

Testing:

Speed : 300 rom Minimum rack trave: 8.90

rpm : 400 Speed

Rack travel in mn: 6.00...6.40

CONSTANT REGULATION

rpm : 345...495 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 13.80...13.90

2nd speed rpm : 800

Rack travel in m: 12.10...12.30 3rd speed rpm : 500

Rack travel in m: 11.15...11.55

Aneroid/Altitude

Compensator Test

1st version

Settina

: 1250 Speed rpm Pressure hPa : 1200

Rack travel mm : 13.80...13.90

Measurement

Speed 1/min: 1250

1st pressure hPa : -

Rack travel in m: 9.50...9.90
2nd pressure hPa : 305
Rack travel in m: 10.80...10.90

3rd pressure hPa : 585

Rack travel in m: 12.60...13.00

START CUT-OUT

1/min: 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 800 Del.quantity cm3/ : 138.5...144.5 1000 s: (135.5...147.5)

cm3 : 8.00

1000 s: (12.0)

rpm : 1250 Speed

Del.quantity cm3/: 89.0...93.0 1000 s: (87.0...95.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 12.80

rpm : 1315...1345 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 6.00...6.40

Del.quantity cm3/: 18.0...24.0

1000 s: (16.0...26.0) cm3 : 4.00Spread

1000 s: (8.00)

Remarks:

: C.D.C. # 392 4903

Start-of-delivery mark 6° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM Edition : 02.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 736 847

Injection pump

Pump designation : PES6P120A120RS7287

EP type number

: 0 412 726 896

Governor

Governor design. : RQV400...1250PA964

-22K

Governer no. : 0 421 815 366

Customer—spec. information Customer : C.D.C.

Engine : 68TA-A

1st version kW : 156.0

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

assembly : 1 688 901 103

Opening

pressure, bar : 207...210

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

/AN Table 1

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _____

BEGINNING OF DELIVERY Test pressure, bar: 22...24 Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 10.00...13.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 17.7...17.9

100 s: (17.4...18.2)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400

Rack travel in mm : 6.0...6.4 Del.quantity cm3/ : 1.6...2.2

el.quantity cm3/: 1.6...2.2 100 s: (1.4...2.4)

--7 - 0 /

Spread cm3 : 0.4 100 s: (0.8)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.40...1.60

2nd speed rpm : 550

travel mm : 3.10...3.50

3rd speed rpm: 800

travel mm : 4.30...4.70

4th speed rpm : 1250

travel mm : 7.00...7.20

5th speed rpm : 1500

travel mm : 9.20...9.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1150 Aneroid pressure h: 1200

Del.quantity : 177.0...179.0

1000 : (174.0...182.0)

Spread cm3 : 8.00

1000 : (12.00)

RATED SPEED

1st version Control lever

position degrees: 112...124

Testing:

1st rack travel in: 13.10

rpm : 1300...1330 Speed

2nd rack travel in: 4.00

Speed rpm : 1475...1485

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 66...78

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 6.20

Testing:

Speed rpm : 300 Minimum rack trave: 8.80 rpm : 400

Rack travel in mm : 5.00...6.40

CONSTANT REGULATION

rpm : 345...495 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 14.10...14.30

2nd speed rpm : 1150

Rack travel in m: 14.30...14.40

3rd speed rpm : 800

Rack travel in m: 13.10...13.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 1150 Pressure hPa : 1200

: 14.30...14.40 Rack travel mm

Measurement

Speed 1/min: 1250

1st pressure hPa : -

Rack travel in m: 10.40...10.80

2nd pressure hPa : 425

Rack travel in m: 11.40...11.50

3rd pressure hPa : 685

Rack travel in m: 13.20...13.60

START CUT-OUT

Speed

1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

: 800 rom Del.quantity cm3/: 159.0...165.0

1000 s: (156.0...168.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 1150 Del.quantity cm3/ : 99.0...103.0

1000 s: (97.0...105.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1300...1330

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 12.00...13.00

LOW IDLE

Speed : 400 rpm

Rack travel in mm : 6.00...6.40

Del.guantity cm3/: 16.5...22.5

1000 s: (14.5...24.5)

Spread cm3 : 4.00

1000 s: (8.00)

Remarks:

: FB-BLOCK. 6.25° NACH

: /AFTER FB ZYL. 1

: C.D.C. # 392 1923

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM Edition : 02.94

Replaces

Test oil : ISO-4113

÷ 0 402 736 848 Combination no.

Injection pump

Pump designation : PES6P120A120RS7314

EP type number : 0 412 726 901

Governor

Governor design. : RQV400...1250PA964-2

Governer no. : 0 421 815 374

Customer-spec. information Customer : CDC

Engine : 6BTA-A

1st version kW : 142.0 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values _

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 3.55...3.65 Prestroke mm

: (3.50...3.70)
Rack travel in mm : 10.00...13.00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

Spread cm3 : 0.8

100 s: (1.2)

2nd speed rpm : 400

Rack travel in mm: 6.9...7.3 Del.quantity cm3/: 1.5...2.1

100 s: (1.3...2.3)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400

travel mm : 1.80...2.00

2nd speed rpm : 550

travel mm 3.30...3.70

3rd speed rpm : 800

: 4.30...4.70 travel mm

: 1250 4th speed rpm

travel mm : 7.10...7.30

: 1500 5th speed man

: 9.20...9.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1200 Aneroid F. Del.quantity 1000

: 165.5...167.5

: (162.5...170.5)

: 8.00 Spread cm3

1000 : (12.00)

RATED SPEED 1st version Control lever position degrees: 112...124 Testing: 1st rack travel in: 12.80 rpm : 1295...1325 Speed 2nd rack travel in: 4.00 rpm : 1465...1475 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 66...78 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 7.10 Testing: Speed rpm : 300 Minimum rack trave: 9.80 : 400 rpm Rack travel in mm : 6.90...7.30 CONSTANT REGULATION rpm : 345...495 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 14.20...14.30 rpm : 800 2nd speed Rack travel in m: 13.00...13.40 rpm : 1250 3rd speed Rack travel in m: 13.80...14.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1150 rom Pressure hPa : 1200 Rack travel mm : 14.20...14.30

Measurement 1/min: 1150 Speed 1st pressure hPa : -Rack travel in m: 11.10...11.50 2nd pressure hPa : 375 Rack travel in m: 12.10...12.20 3rd pressure hPa : 500 Rack travel in m: 13.10...13.50 A12

START CUT-OUT Speed

1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed rpm : 800

Del.quantity cm3/: 144.0...150.0

1000 s: (141.0...153.0) cm3 : 8.00

Spread 1000 s: (12.0)

Aneroid pressure h: rpm : 1150 Speed

Del.quantity cm3/: 106.5...110.5

1000 s: (104.5...112.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.80

Speed rpm : 1295...1325

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0...175.0

1000 s: (130.0...180.0)

Rack travel in mm : 13.50...14.50

LOW IDLE

Speed rpm : 400 Rack travel in mm : 6.90...7.30 Del.quantity cm3/: 15.0...21.0 1000 s: (13.0...23.0)

Spread cm3 : 4.001000 s: (8.00)

Remarks:

: C.D.C. # 392 1922

Start-of-delivery blocking 5,75° after start of delivery of cylinder no. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : CUM Edition : 02.94

Replaces

Test oil : ISO-4113

Combination no. : 0 402 736 848

Injection pump

Pump designation : PES6P12OA12ORS7314 EP type number : 0 412 726 901

Governor : RQV400...1250PA964-2

Governor design.

: 0 421 815 374 Governer no.

Customer—spec. information Customer : CDC

Engine : 6BTA-A

: 142.0 1st version kW Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 086

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 90...110

Test nozzle holder

: 1 688 901 103 assembly

Opening

pressure, bar : 207...210

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 22...24

: 3.55...3.65 : (3.50...3.70) Prestroke mm

Rack travel in mm : 10.00...13.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50(0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom : 1150

Rack travel in mm : 14.20...14.30

Del.quantity cm3/: 16.5...16.7

100 s: (16.2...17.0)

Spread cm3 : 0.8

100 s: (1.2)

rpm : 400.0 2nd speed Rack travel in mm: 6.9...7.3

Del.quantity cm3/: 1.5...2.1

100 s: (1.3...2.3)

cm3 : 0.4Spread 100 s: (0.8)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

travel mm : 1.40...1.60

550 2nd speed rpm

3.10...3.50 travel mm

3rd speed : 800 rpm

travel mm : 4.30...4.70

4th speed : 1250 **Lbw**

: 7.00...7.20 travel mm

5th speed : 1500 rpm

: 9.20...9.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1200

Del.quantity : 103.3...170.5)

: 8.00 Spread cm3

1000 : (12.00)

RATED SPEED 1st version Control lever position degrees: 112...124 Testing: 1st rack travel in: 12.70 rpm : 1295...1325 Speed 2nd rack travel in: 4.00 rpm : 1465...1475 Speed 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 66...78 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 7.10 Testing: Speed rpm : 300 Minimum rack trave: 9.80 : 400 rpm Rack travel in mm : 6.90...7.30 CONSTANT REGULATION rpm : 345...495 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 14.10...14.20 rpm : 800 2nd speed Rack travel in m: 13.00...13.20 3rd speed rpm : 1250 Rack travel in m: 13.80...14.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 1150 rom Pressure hPa : 1200 Rack travel mm : 14.10...14.20 Measurement 1/min: 1150 Speed Rack travel in m: 11.10...11.50 2nd pressure hPa : 375 Rack travel in m: 12.10...12.20 3rd pressure hPa : 500 Rack travel in m: 13.10...13.50

1/min: 290 (300) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.quantity cm3/: 144.0...150.0 1000 s: (141.0...153.0) Spread cm3 : 8.00 1000 s: (12.0) Speed rpm: 1150
Del.quantity cm3/: 106.5...110.5
1000 s: (104.5...112.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.70 rpm : 1295...1325 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 135.0...175.0 1000 s: (130.0...180.0) Rack fravel in mm : 13.50...14.50 LOW IDLE Speed rpm : 400 Rack travel in mm : 6.90...7.30 Del.quantity cm3/: 15.0...21.0 1000 s: (13.0...23.0) Spread cm3 : 4.001000 s: (3.00) Remarks: : C.D.C. # 392 1922 Start-of-delivery blocking 5,75° after start of delivery of cylinder no. 1.

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB : 02.94 Replaces : 04.92 Test oil : ISO-4113

Combination no. : 0 402 746 918

Injection pump

Pump designation : PES6P120A720LS7238

-10

EP type number : 0 412 726 873

Governor

Governor design. : RQ300/1100PA1013

Governer no. : 0 421 801 599

Customer-spec. information

Customer : MERCEDES-BENZ

Engine : OM447 hLA

1st version kW : 220.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60 : (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 600

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 21.3...21.5

100 s: (21.0...21.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 6.0...6.6 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 600 Aneroid pressure h: 600

Del.quantity : 213.0...215.0

1000 : (210.0...218.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 94.0...102.0

Setting point:

rpm : 600 Speed Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.60 rpm : 1145...1160 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1260 4th rack travel in: 1350

Speed rom : 0.00...1.50

LOW IDLE 1 Control lever

position degrees: 69.0...77.0 Setting point w/out bumper spring

Speed rpm : 300 Rack travel in mm: 6.30

Testing:

Speed : 200 rpm Minimum rack trave: 8.20 : 300 Speed man

Rack travel in mm : 6.20...6.40

Rack travel in mm: 2.00 rpm : 380...420 Speed

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 600 man hPa : 600 Pressure

: 14.00...14.20 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : 200

Rack travel in m: 12.30...12.50

2nd pressure hPa : 400

Rack travel in m: 13.70...13.90

3rd pressure hPa : 800

Rack travel in m: 14.30...14.50

START CUT-OUT

1/min : 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 1100 Del.quantity cm3/ : 229.0...232.0 1000 s: (226.0...235.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h: 1400

: 700 Speed rom Del.quantity cm3/: 233.0...237.0 1000 s: (230.0...240.0)

cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 140.0...142.0

1000 s: (137.0...145.0)

1000 s: (12.0)

BREAKAWAY

Spread

1st version 1mm rack travel less than

full load rack tr: 13.60

Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity_cm3/ : 220.0...240.0

1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB : 02.94 Edition Replaces : 08.92 Test oil : ISO-4113 Combination no. : 0 402 746 922 Injection pump Pump designation: PES6P120A720LS7238-1 EP type number : 0 412 726 873 Governor Governor design. : R9300/1100PA1013-3 Governer no. : 0 421 801 609 Customer-spec. information Customer : MERCEDES-BENZ Engine : 0M447 hLA 1st version kW : 220.0 : 2200 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. *C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Overflow quantity min. 1/h: 100...120 Test nozzle holder : 1 688 901 105 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,8

Test Lines : 1 680 750 075 Outside diameter x Wall thickness x Length mm : 8.00x2.50x1000 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____ A17

BEGINNING OF DELIVERY Test pressure, bar: 25...27 Prestroke mm : 5.50...5.60 : (5.45...5.65) Rack travel in mm : 20.00...21.00 Firing order : 6-2-4-1-5-3 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.30 (0.70) Time to cyl. no. : 6 BASIC SETTING 1st speed rpm: 600 Rack travel in mm : 13.70...13.90 Del.quantity cm3/: 20.5...20.7 100 s: (20.2...21.0) cm3 : 0.5Spread 100 s: (0.9) 2nd speed rpm : 300 Rack travel in mm: 5.9...6.5 Del.quantity cm3/: 1.6...2.2 100 s: (1.3...2.5) Spread cm3 : 0.6 100 s: (1.0) GUIDE SLEEVE POSITION Control-lever position Degree: 108...110 rpm : 600 Speed Rack travel in mm : 19.20...20.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 600 Aneroid pressure h: 600 Del.quantity : 205.0...207.0 1000 : (202.0...210.0) : 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 94.0...102.0 Setting point:

rpm : 600 Speed Rack travel in mm: 20.0 Testing: 1st rack travel in: 13.50 rpm : 1145...1161 Speed 2nd rack travel in: 4.00 rpm : 1220...1250 Speed 4th rack travel in: 1300 rpm : 0.00...1.50 Speed LOW IDLE 1 Control lever position degrees: 69.0...77.0 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.20 Testing: Speed : 200 rpm Minimum rack trave: 8.40 rpm : 300 Speed Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 Speed rpm : 380...420 Aneroid/Altitude Compensator Test

1st version Setting Speed

: 600 rom Pressure hPa : 600

: 13.70...13.90 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : 150

Rack travel in m: 11.60...11.80

2nd pressure hPa : 350

Rack travel in m: 13.10...13.30

3rd pressure hPa : 800

Rack travel in m: 13.90...14.10

4th pressure hPa : 950

Rack travel in m: 14.30...14.50

START CUT-OUT

1/min: 220 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400 Speed rpm : 1100 Del.quantity cm3/ : 221.0...224.0 1000 s: (218.0...227.0)

Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0)

Spread cm3 : 8.00

1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 1145...1161

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 220.0...240.0 1000 s: (216.0...244.0)

Remarks:

A18

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB
Edition : 02.94
Replaces : 10.92
Test oil : ISO-4113

Combination no. : 0 402 746 923X

Injection pump

Pump designation : PES6P120A720LS7237-1

EP type number : 0 412 726 872

Governor

Governor design. : R0300/1100PA1013-2

Governer no. : 0 421 801 611

Customer-spec, information

Customer : MERCEDES-BENZ

Engine : 0M447 hA

1st version kW : 184.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 120...140

Test nozzle holder

assembly : 1 688 901 105

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter

x Wall thickness

x Length mm : 8.00x2.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order

: 6-2-4-1-5-3

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.30 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 13.65...13.75

Del.quantity cm3/: 19.8...20.0

100 s: (19.5...20.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300

Rack travel in mm : 6.2...6.8 Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

peed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100 Aneroid pressure h: 1400

Del.quantity : 198.0...200.0 1000 : (195.0...203.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 95.0...103.0

Setting point:

Speed rpm : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.70

rpm : 1145...1161 Speed

2nd rack travel in: 4.00

rpm : 1220...1250 Speed

4th rack travel in: 1300

rpm : 0.00...1.50Speed

LOW IDLE 1 Control lever

position degrees: 72.0...80.0 Setting point w/out bumper spring

Speed : 300 rpm Rack travel in mm: 6.50

Testing:

Speed rpm : 200 Minimum rack trave: 8.30 rpm : 300 Speed

Rack travel in mm : 6.40...6.60

Rack travel in mm: 2.00 Speed rpm : 380...420

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : -Pressure

Rack travel mm : 12.00...12.30

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : 600

Rack travel in m: 12.65...12.75

2nd pressure hPa : 800

Rack travel in m: 12.85...13.05

START CUT-OUT

Speed 1/min: 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400

Speed rpm : 800 Del.quantity cm3/ : 201.0...205.0

1000 s: (198.0...208.0)

Spread cm3 : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed CDW : 500 Del.quantity cm3/: 144.0...146.0

1000 s: (141.0...149.0)

cm3 : 8.001000 s: (12.0)

BREAKAWAY

Spread

1st version

1mm rack travel less than

full load rack tr: 12.70

rpm : 1145...1161 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 200.0...220.0 1000 s: (196.0...224.0)

Remarks:

A20

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 4.80...4.90 : (4.75...4.95) Note remarks Rack travel in mm : 12.50...13.50 Firing order : 6-2-4-1-5-3 Test sheet : MAN Edition : 02.94 : 12.93 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 958 Tolerance + - ° : 0.30 (0.75) Injection pump Time to cyl. no. : 6 Pump designation : PES6P120A720LS7209-2 EP type number : 0 412 726 898 BASIC SETTING Governor Governor design. : RQV300...900PA1103 1st speed rpm : 900: 0 421 814 076 Governer no. Rack travel in mm : 11.20...11.30 Customer-spec. information Customer : MAN Del.quantity cm3/: 22.9...23.1 : D2866LE40 Engine 100 s: (22.6...23.4) 1st version kW : 265.0 Spread cm3 : 0.5Rated speed : 1800 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 300.02nd speed Rack travel in mm : 5.1...5.5 Del.quantity cm3/ : 4.4...5.0 Test oil inlet temp. °C : 38...42 100 s: (4.1...5.3) Overflow valve Spread cm3 : 0.8: 1 417 413 025 100 s: (1.2) Inlet press., bar: 1.50 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 105 assembly GUIDE SLEEVE TRAVEL rpm : 300 1st speed Opening 1 : 1.12...1.32 travel mm : 207...210 pressure, bar 2nd speed rpm : 360 : 1.79...2.19 travel mm Orifice plate rpm : 410 3rd speed diameter mm : 0,8 : 2.36...2.56 travel mm 4th speed : 656 rpm : 4.54...4.94 travel mm Test lines : 1 680 750 089 5th speed : 966 rpm : 8.35...8.55 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 8.00x2.50x600 Control-lever position Degree: -1 (A) Injection pump setting values Speed rpm : 1030 Insp. values in parentheses Rack travel in mm : 9.50...12.10 Set equal delivery quant. per values ____ FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 25...27 Speed rpm : 900

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

cm3 : 5.00Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 116.0...124.0

Testing:

1st rack travel in: 10.20 Speed rpm : 950...960 2nd rack travel in: 4.00

rpm : 1010...1040 Speed

4th rack travel in: 1150

rpm : 0.00...1.00 Speed

LOW IDLE 1 Control lever

position degrees: 79.0...87.0

Testing:

Speed rpm : 200 Minimum rack trave: 7.00

Speed rpm : 300 Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

rpm : 275...405 Speed

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 950...960

STARTING FUEL DELIVERY

Speed : 100 **TOM**

Del.quantity cm3/: 208.0...228.0

1000 s: (204.0...232.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 5.10...5.50 Del.quantity cm3/: 43.0...49.0

1000 s: (40.0...52.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 3-7304/1

Setting and blocking of pointer of start-of-delivery sensor on cyl. 6

start of delivery

A22

BOSCH INJ. PUMP TEST SPECIFICATIONS : 5.50...5.60 Prestroke mm : (5.45...5.65) Note remarks Rack travel in mm : 20.00...21.00 : 6-3-5-2-4-1 Firing order Test sheet Edition : 21.06.91 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : A KV1 877 8 -360Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation: PE6P12OA320LS7834 Time to cyl. no. : 6 EP type number : 0 412 626 841 Governor BASIC SETTING Governor design. : RQ300/950PA971 : 0 421 801 543 Governer no. 1st speed rpm: 600 Customer-spec. information Rack travel in mm : 14.50...14.70 Customer : MB-NFZ Del.quantity cm3/: 22.7...22.9 Engine : 0M401 LA 100 s: (22.4...23.2) 1st version kW : 230.0 Spread cm3 : 0.5TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil inlet temp. °C : 38...42 2nd speed rpm : 300.0Rack travel in mm : 6.3...6.9 Overflow valve Del.quantity cm3/: 1.6...2.2 : 1 417 413 025 100 s: (1.3...2.5) Spread cm3 : 0.6Inlet press., bar: 1.50 100 s: (1.0) Overflow (B) Setting of injection pump quantity min. 1/h: 100...120 with governor Test nozzle holder GUIDE SLEEVE TRAVEL : 1 688 901 105 assembly 1st speed rpm : 300 travel mm 2.00...2.30 Openina 2nd speed : 500 rpm : 207...210 pressure, bar travel mm 5.90...6.10 3rd speed rpm : 950 travel mm : 6.30...6.50 Test lines : 1 680 750 075 4th speed rpm : 1009 travel mm : 6.60...6.80 Outside diameter 5th speed rpm : 1160 x Wall thickness travel mm : 11.00...12.00 : 8.00X2.50X1000 x Length mm GUIDE SLEEVE POSITION (A) Injection pump setting values Control-lever position Insp. values in parentheses Degree: 108 Set equal delivery quant. rpm : 600 Speed Rack travel in mm : 19.20...20.80 per values BEGINNING OF DELIVERY FULL LOAD DELIV. AT FULL LOAD STOP Test pressure, bar: 25...27 1st version

Speed

rpm : 600

Aneroid pressure h: 1100

: 227.0...229.0 Del.quantity

1000 : (224.0...232.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 96...104

Setting point:

Speed : 600 Rack travel in mm: 20.0

Testing:

1st rack travel in: 13.90

rpm : 990...1005 Speed

2nd rack travel in: 4.00

rpm : 1065...1095 Speed

4th rack travel in: 1200

rpm : 0.00...1.50Speed

LOW IDLE 1 Control lever

position degrees: 70...78

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 6.6

Testina:

: 200 Speed rpm

Minimum rack trave: 8.50

: 300 rpm

Rack travel in mm : 6.30...6.90

Rack travel in mm: 2.00

Speed : 380...420 rom

TORQUE CONTROL

Dimension a mm : 0.35

: 950 2nd speed rpm

Rack travel in m: 14.90...15.10

: 800 3rd speed rpm

Rack travel in m: 15.20...15.40

Aneroid/Altitude

Compensator Test

1st version Setting

Speed : 600 rpm

Measurement

1/min: 600 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

Speed : 950 rpm

Del.quantity cm3/: 236.0...239.0

1000 s: (233.0...242.0)

: 8.00 Spread cm3 1000 s: (12.)

Aneroid pressure h: 1800

Speed rpm : 800 Del.quantity cm3/ : 243.0...247.0

1000 s: (240.0...250.0)

cm3 : 8.00Spread 1000 s: (12.00

: 500 rom

Del.quantity cm3/: 122.0...124.0

1000 s: (119.G...127.0)

Spread cm3 : 8.00

1000 s: (12.00

BREAKAWAY

Speed

1st version

1mm rack travel less than

full load rack tr: 13.90

Speed rpm : 990...1605

STARTING FUEL DELIVERY

: 100 Speed rpm

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PER

Edition : 14.02.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 236 005

Injection pump

Pump designation : PES6MW100/720/3RS151

EP type number : 0 413 206 018

Governor

Governor design. : RQV325...1300MW133-1

: 0 420 083 984 Governer no.

Customer-spec. information Customer : PERKINS

Engine : 180TI

1st version kW : 134.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 688 901 101

Opening

pressure, bar : 207...210

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.95...5.05 : (4.90...5.10)

Rack travel in mm : 13.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 14.30...14.40

Del.quantity cm3/: 13.8...14.0

100 s: (13.5...14.3)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 325.0 Rack travel in mm: 5.4...5.6 Del.quantity cm3/ : 2.1...2.5

100 s: (1.9...2.7)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.45...1.95 travel mm

: 361 2nd speed rpm

: 2.09...2.59 travel mm

3rd speed 500 rpm

3.67...4.17 travel mm

: 881 4th speed rpm

: 6.21...6.71 travel mm

5th speed : 1355 rpm

: 9.98...10.48 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1380 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 900

Del.quantity : 150.0...143.0)

Spread cm3 : 4.00 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 13.30 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1475...1505 4th rack travel in: 1600 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring rpm : 325 Rack travel in mm: 5.5 Testing: rpm : 200 Speed Minimum rack trave: 8.00 Speed rpm : 325 Rack travel in mm : 5.40...5.60 Aneroid/Altitude Compensator Test 1st version Setting : 1300 Speed rpm Pressure hPa : 900 Rack travel mm : 14.30...14.40 Measurement Speed 1/min: 1300 1st pressure hPa : -Rack travel in m: 9.25...6.35 2nd pressure hPa : 250 Rack travel in m: 10.25...10.35 3rd pressure hPa : 400 Rack travel in m: 12.85...13.15 START CUT-OUT 1/min: 240 (270) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1300 Speed

Del.quantity cm3/: 138.0...143.0 1000 s: (135.0...143.0) cm3 : 4.00 Spread 1000 s: (7.50) Aneroid pressure h: 900 Speed rpm : 800 Del.quantity cm3/ : 135.0...139.0 1000 s: (132.0...142.0) Spread cm3 : 6.00 1000 s: (9.00) Aneroid pressure h: 900 rpm : 500 Del.quantity cm3/: 110.0...114.0 1000 s: (107.0...117.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 71.0...73.0 1000 s: (69.0...75.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.30 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 78.0...92.0 1000 s: (75.0...95.0) LOW IDLE Speed rpm : 300
Rack travel in mm : 5.40...5.60
Del.quantity cm3/ : 21.0...25.0
1000 s: (18.5...27.5)
Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery blocking 46.5° before start of delivery of cylinder 1

A26

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : 09.02.94 Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 244 031 Injection pump Pump designation : PES4MW100/720RS1513-EP type number : 0 413 204 014 Governor Governor design. : RQV300...1300MW125-3 Governer no. : 0 420 083 260 Customer—spec. information Customer : MB : 0M364LA Engine : 104.0 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 688 901 101 **Opening** pressure, bar : 207...210 Test lines : 1 680 750 089 Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm: 21.00 Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 12.80...12.90 Del.quantity cm3/: 12.1...12.3 100 s: (11.9...12.5) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.2...1.6 100 s: (0.9...1.9) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.15...1.65 travel mm rpm : 413 2nd speed : 2.25...2.75 travel mm 3rd speed rpm : 880 : 4.75...5.25 travel mm rpm : 1354 4th speed travel mm : 8.43...8.93 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 1200 Del.quantity : 121.0...123.0 1000 : (119.0...125.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED

per values ___

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 5.20...5.30

: (5.15...5.35)

1st version Control lever

position degrees: 114...122

Testina:

1st rack travel in: 11.80

rpm : 1340...1350 Speed

2nd rack travel in: 4.00

rpm : 1430...1460 Speed

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 74...82

Testing:

Speed rpm : 200 Minimum rack trave: 6.00

Speed rpm : 300 Rack travel in mm : 4.20...4.40

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 man Pressure hPa : 1200

Rack travel mm : 12.80...12.90

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 6.80...7.00

2nd pressure hPa : 300

Rack travel in m: 8.10...8.30

3rd pressure hPa : 700

Rack travel in m: 11.25...11.35

START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 Speed : 750 rpm

Del.quantity cm3/: 118.0...121.0

1000 s: (115.5...123.5)

cm3 : 5.00 Spread

1000 s: (7.00)

Aneroid pressure h: -

Speed man : 500 Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0 1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 4.20...4.40

Del.quantity cm3/: 12.0...16.0

1000 s: (9.5...18.5)

cm3 : 3.50 Spread

1000 s: (5.50)

:

Remarks:

A28

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB

: 15.02.94 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 244 032

Injection pump

Pump designation : PES4MW100/720RS1519-

EP type number : 0 413 204 016

Governor

Governor design. : RQV300...1300MW132-1

Governer no. : 0 420 083 292

Customer-spec. information

Customer : MB

Engine : 0M364LA

1st version kW : 103.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 688 901 101 assembly

Openina

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter

x Wall thickness

: 8.00x2.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.50...4.60 Prestroke mm

: (4.45...4.65)

Rack travel in mm: 21.00

: 1- 3- 4- 2 Firing order

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in nm : 13.85...13.95

Del.quantity cm3/: 12.5...12.7

100 s: (12.2...13.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm: 3.7...3.9 Del.quantity cm3/: 1.0...1.4

100 s: (0.75...1.65)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: : 300

: 0.66...1.16 travel mm

2nd speed rpm : 629

travel mm : 2.9...3.4

3rd speed rpm : 820 travel mm

: 3.86...4.34 : 1150 4th speed rpm

: 5.7...6.2 : 1354 travel mm

5th speed rpm

: 7.52...8.02 travel mm

GUIDE SLEEVE POSITION

Control-lever position

rpm : 1510 Speed

Rack travel in mm : 15.20...17.80

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1400

Del.quantity : 723.0...130.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED 1st version Control lever position degrees: 112...120 Testing: 1st rack travel in: 12.90 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1435...1465 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 67...75 Testing: Speed : 200 morn Minimum rack trave: 4.50 : 300 Speed rpm Rack travel in mm: 3.7...3.9 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 1400 Rack travel mm : 13.85...13.95 Measurement $1/\min : 500$ Speed 1st pressure hPa :-Rack travel in m: 10.70...10.90 2nd pressure hPa : 550 Rack travel in m: 11.50...11.70 3rd pressure hPa : 800 Rack travel in m: 13.0...13.2 START CUT-OUT Speed 1/min: 200 (220) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400

: 1300

cm3 : 5.00 1000 s: (7.50)

1000 s: (122.0...130.0)

rpm Del.quantity cm3/: 125.0...127.0

Aneroid pressure h: 1400

Speed rpm : 750 Del.quantity cm3/ : 122.0...126.0 1000 s: (119.0...129.0) cm3 : 6.00Spread 1000 s: (9.00) Aneroid pressure h: 1400 Speed man : 600 Del.quantity cm3/: 126.0...130.0 1000 s: (123.0...133.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 66.0...68.0 1000 s: (64.0...70.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...145.0 1000 s: (132.0...148.0) LOW IDLE Speed rpm : 300 Rack travel in mm: 3.7...3.9 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: •

B02

Speed

Spread

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet ; MB Edition : 15.02.94 Replaces Test oil : ISO-4113 Combination no. : O 403 244 032T3 Injection pump Pump designation : PES4MW100/720RS1519 EP type number : 0 413 204 013 Governor Governor design. : RQV300...1300Mw132-1 : 0 420 083 292 Governer no. Customer-spec. information Customer ; MB Engine : 0M364LA 1st version kW : 103.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ____

Firing order : 1- 3- 4- 2 Phasina : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1300Rack travel in mm : 13.40...13.50 Del.quantity cm3/: 14.0...14.2 100 s: (13.7...14.5) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0Pack travel in mm: 3.2...3.4 Del.quantity cm3/: 1.0...1.4 100 s: (0.75...1.65) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 0.77...1.27 travel mm 2nd speed : 530 rom travel mm : 2.36...2.86 3rd speed rpm : 630 travel mm : 3.29...3.79 4th speed : 939 rpm travel mm 5.52...6.02 rpm : 1355 5th speed : 9.95...10.45 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1300Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 1400 Del.quantity : 140.0...142.0 1000 : (137.0...145.0) : 3.50 Spread cm3 1000 : (6.00)

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm: 21.00

: 4.50...4.60

: (4.45...4.65)

RATED SPEED 1st version Control lever position degrees: 110...118 Testing: 1st rack travel in: 12.50 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1435...1465 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 64...72 Testina: Speed : 200 mqn Minimum rack trave: 4.00 Speed : 300 rpm Rack travel in mm: 3.2...3.4 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 1400 Rack travel mm : 13.40...13.50 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.8...9.9 2nd pressure hPa : 600 Rack travel in m: 10.7...10.9 3rd pressure hPa : 900 Rack travel in m: 12.4...12.6 START CUT-OUT 1/min: 180 (200) Speed' FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 1300 Del.quantity cm3/: 140.0...142.0 1000 s: (137.0...145.0)

cm3 : 4.00 1000 s: (7.50)

: 750

Aneroid pressure h: 1400

rpm

Del.quantity cm3/: 133.0...137.0 1000 s: (130.0...140.0) cm3 : 6.00Spread 1000 s: (9.00) Aneroid pressure h: 1400 Speed rpm : 600 Del.quantity cm3/: 133.0...137.0 1000 s: (130.0...140.0) Aneroid pressure h: rom : 500 Speed Del.quantity cm3/: 57.0...59.0 1000 s; (55.0...61,0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.50 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...150.0 1000 s: (137.0...153.0) LOW IDLE rpm : 300 Speed Rack travel in mm: 3.2...3.4 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks:

Spread

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB Edition : 15.02.94 Replaces Test oil : ISC-4113 Combination no. : 0 403 244 034 Injection pump Pump designation : PES4MW100/720RS1519 EP type number : 0 413 204 013 Governor Governor design.: RQV300...1300MW132-3 : 0 420 083 296 Governer no. Customer-spec. information Customer : MB Engine : 0M364LA 1st version kW : 77.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 792 198 Inlet press., bar: 1.50 Test nozzle holder : 0 688 901 101 assembly Opening pressure, bar : 207...210 Test lines : 1 680 750 089 Outside diameter x Wall thickness : 8.00x2.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Test pressure, bar: 30...32 : 4.50...4.60 : (4.45...4.65) Rack travel in mm : 21.00

Firing order : 1-3-4-2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 11.5...11.6 Del.quantity cm3/: 9.4...9.6 100 s: (9.2...9.8) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm: 3.9...4.1 Del.quantity cm3/: 1.0...1.4 100 s: (0.75...1.65) Spread cm3 : 0.3100 s: (2,5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 travel mm : 0.66...1.16 2nd speed rpm : 629 travel mm : 2.9...3.4 3rd speed rpm : 800 travel mm : 3.75...4.25 rpm : 1140 4th speed : 5.63...6.13 travel mm 5th speed rpm : 1345 travel mm : 7.39...7.89 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1400 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 1000 Del.quantity : 94.0...98.0) : 3.50 1000 : (6.00)

Prestroke mm

RATED SPEED 1st version Control lever position degrees: 106...114 Testing: 1st rack travel in: 1059 rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1435...1465 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 65...73 Testing: Speed : 200 rpm Minimum rack trave: 4.50 rpm : 300 Speed Rack travel in mm: 3.9...4.1 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : 1000 Pressure Rack travel mm : 11.5...11.6 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.6...10.8 2nd pressure hPa : 500 Rack travel in m: 11.0...11.2 START CUT-OUT Speed 1/min : 200 (220) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/: 94.0...96.0 1000 s: (92.0...98.0) Spread cm3 : 3.501000 s: (6.00) Aneroid pressure h: 1000 : 750 Speed rpm Del.quantity cm3/: 85.5...88.5 1000 s: (83.0...91.0) Spread cm3: 5.00 1000 s: (7.00) Ameroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 65.0...67.0 1000 s: (63.0...69.0)

1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1340...1350
STARTING FUEL DELIVERY

1st version

LOW IDLE

Speed rpm : 100 Del.quantity cm3/ : 125.0...135.0 1000 s: (122.0...138.0)

Speed rpm : 300
Rack travel in mm : 3.9...4.1
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 21.00 Firing order : 1- 3- 4- 2 Note remarks Test sheet : MB Edition : 15.02.94 Phasing : 0-90-180-270 Replaces Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75) Combination no. : 0 403 244 032 BASIC SETTING Injection pump rpm: 1300 1st speed Pump designation : PES4MW100/720RS1519-Rack travel in mm : 13.85...13.95 EP type number : 0 413 204 016 Governor Del.quantity cm3/: 12.5...12.7 Governor design. : RQV300...1300MW132-1 : 0 420 083 292 Governer no. 100 s: (12.2...13.0) Customer-spec, information Spread cm3 : 0.3Customer : MB 100 s: (0.6) : 0M364LA Engine 2nd speed rpm : 300.0 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 1.0...1.4 1st version kW : 103.0 Rated speed : 2600 100 s: (0.75...1.65) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve GUIDE SLEEVE TRAVEL : 1 419 992 198 1st speed rpm : 300 Inlet press., bar: 1.50 : 0.66...1.16 travel mm 2nd speed rpm : 629 Test nozzle holder : 2.9...3.4 travel mm : 0 688 901 101 assembly 3rd speed : 820 rpm travel mm : 3.84...4.34 Opening rpm : 1150 4th speed pressure, bar : 207...210 travel mm : 5.7...6.2 : 1354 5th speed rpm travel mm : 7.52...8.02 Test lines : 1 680 750 089 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 x Length mm : 8.00x2.50x600 rpm : 1300 Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version rpm : 1300 Speed BEGINNING OF DELIVERY Aneroid pressure h: 1400 : 125.0...127.0 Test pressure, bar: 30...32 Del.quantity 1000 : (122.0...130.0) cm3 : 3.50 : 4.50...4.60 Prestroke mm Spread : (4.45...4.65) 1000 : (6.00)

RATED SPEED 1st version

Control lever position degrees: 112...120

Testing:

1st rack travel in: 12.9

Speed rpm : 1340...1350

2nd rack travel in: 4.00

rpm : 1435...1465 Speed

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 67...75

Testing:

Speed rpm : 200 Minimum rack trave: 4.50 rpm : 300 Speed

Rack travel in mm: 3.7...3.9

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 morn hPa : 1400 Pressure

: 13.85...13.95 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 10.7...10.9

2nd pressure hPa : 550

Rack travel in m: 11.5...11.7

3rd pressure hPa : 800

Rack travel in m: 13.0...13.2

START CUT-OUT

1/min: 200 (220) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400 : 1300 Speed rpm

Del.quantity cm3/: 125.0...127.0 1000 s: (122.0...130.0)

cm3 : 4.00Spread 1000 s: (7.50)

Aneroid pressure h: 1400

Speed rpm : 750 Del.quantity cm3/ : 122.0...126.0 1000 s: (119.0...129.0)

cm3 : 6.00Spread

1000 s: (9.00)

Aneroid pressure h: 1400 Speed rom : 600

Del.quantity cm3/: 126.0...130.0

1000 s: (123.0...133.0)

Aneroid pressure h: -Speed rpm : 500

Del.quantity cm3/: 66.0...68.0 1000 s: (64.0...70.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 135.0...145.0

1000 s: (137.0...148.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 3.7...3.9 Del.quantity cm3/ : 10.0...14.0

1000 s: (7.5...16.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 15.02.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 244 034 Injection pump Pump designation : PES4MW100/720RS1519 EP type number : 0 413 204 013 Governor Governor design. : RQV300...1300MW152-3 : 0 420 083 296 Governer no. Customer-spec. information Customer : MB : 0M364LA Engine 1st version kW : 77.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 688 901 101 assembly Openina : 207...210 pressure, bar Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

Firing order : 1- 3- 4- 2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 11.5...11.6 Del.quantity cm3/: 9.4...9.6 100 s: (9.2...9.8) Spread cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 3.9...4.1 Del.quantity cm3/: 1.0...1.4 100 s: (0.75...1.65) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 300 1st speed : 0.66...1.16 travel mm 2nd speed rpm : 629 : 2.9...3.4 travel mm 3rd speed rpm : 800 travel mm : 3.75...4.25 4th speed rpm : 1140: 5.63...6.13 travel mm 5th speed rpm : 1345 travel mm : 7.39...7.89 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1400 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300 Aneroid pressure h: 1000 Del.quantity : 94.0...98.0) : 3.50 Spread cm3 1000 : (6.00)

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm: 21.00

: 4.50...4.60

: (4.45...4.65)

RATED SPEED cm3 : 5.00Spread 1000 s: (7.00) 1st version Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 65.0...67.0 Control lever position degrees: 106...114 1000 s: (63.0...69.0) Testing: 1st rack travel in: 10.5 rpm : 1340...1350 Speed **BREAKAWAY** 2nd rack travel in: 4.00 Speed rpm : 1435...1465 1st version 4th rack travel in: 1550 1mm rack travel less than rpm : 0.00...1.00 Speed full load rack tr: 10.50 LOW IDLE 1 rpm : 1340...1350 Speed Control lever position degrees: 65...73 STARTING FUEL DELIVERY Testing: Speed : 200 rpm Speed rpm : 100 Del.quantity cm3/: 125.0...135.0 Minimum rack trave: 4.50 rpm : 300 1000 s: (122.0...138.0) Rack travel in mm: 3.9...4.1 LOW IDLE Aneroid/Altitude Compensator Test Speed rpm : 300 Rack travel in mm: 3.9...4.1 Del.quantity cm3/: 10.0...14.0 1st version 1000 s: (7.5...16.5) Setting Spread cm3 : 3.50Speed rpm : 500 1000 s: (5.50) Pressure hPa : 1000 Rack travel mm : 11.5...11.6 Remarks: Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.6...10.8 2nd pressure hPa : 500 Rack travel in m: 11.0...11.2 START CUT-OUT 1/min : 200 (220) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1300 Del.quantity cm3/: 94.0...96.0 1000 s: (92.0...98.0) Spread cm3 : 3.501000 s: (6.00) Aneroid pressure h: 1000 Speed rpm : 750 Del.quantity cm3/: 85.5...88.5 1000 s: (83.0...91.0)

Note remarks

Test sheet : MB

: 15.02.94 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 244 035

Injection pump

Pump designation : PES4MW100/720RS1519

EP type number : 0 413 204 013

Governor

Governor design. : RQV300...1300MW132-3

: 0 420 083 296 Governer no.

Customer-spec. information

Customa : MB

Engine : 0M364LA

1st version kW : 77.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 688 901 101 assembly

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60

: (4.45...4.65)

Rack travel in mm: 21.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm: 11.5...11.6

Del.quantity cm3/: 9.4...9.6

100 s: (9.2...9.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm : 3.9...4.1 Del.quantity cm3/ : 1.0...1.4

100 s: (0.75...1.65)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.66...1.16 travel mm

rpm : 629 2nd speed

: 2.9...3.4 travel mm

3rd speed rpm : 800

: 3.75...4.25 travel mm

4th speed rpm : 1140

: 5.63...6.13 travel mm

rpm : 1345 5th speed

travel mm : 7.39...7.89

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 1000

: 94.0...96.0 Del.quantity

1000 : (92.0...98.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED Spread cm3 : 5.001000 s: (7.00) 1st version Aneroid pressure h: -Control Lever rpm : 500 Speed Del.quantity cm3/: 65.0...67.0 1000 s: (63.0...69.0) position degrees: 106...114 Testing: 1st rack travel in: 10.5 rpm : 1340...1350 Speed **BREAKAWAY** 2nd rack travel in: 4.00 rpm : 1435...1465 Speed 1st version 4th rack travel in: 1550 1mm rack travel less than rpm : 0.00...1.00 Speed full load rack tr: 10.50 LOW IDLE 1 rpm : 1340...1350 Speed Control lever position degrees: 65...73 STARTING FUEL DELIVERY Testing: Speed rpm Speed rpm : 100 Minimum rack trave: 4.50 Del.quantity cm3/: 125.0...135.0 rpm : 300 1000 s: (122.0...138.0) Rack travel in mm: 3.9...4.1 LOW IDLE Aneroid/Altitude Compensator Test Speed rpm : 300 Rack travel in mm: 3.9...4.1 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.50 1st version Setting Speed 1000 s: (5.50) rpm : 500 hPa : 1000 Pressure Rack travel mm : 11.5...11.6 Remarks: Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.6...10.8 2nd pressure hPa : 500 Rack travel in m: 11.0...11.2 START CUT-OUT Speed 1/min: 200 (220) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1300
Del.quantity cm3/ : 94.0...96.0
1000 s: (92.0...98.0)
Spread cm3 : 3.50 1000 s: (6.00) Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 85.5...88.5 1000 s: (83.0...91.0)

Note remarks

Test sheet : MB6,1I Edition : 09.02.94

: 03.92 Replaces Test oil : ISO-4113

Combination no. : 0 403 246 031

Injection pump

Pump designation : PES6MW100/720RS1515

EP type number : 0 413 206 013

Governor

Governor design. : RQV300...1300MW125-4

: 0 420 083 284 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M366LA Engine

1st version kW : 127.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 688 901 101 assembly

Opening

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 3.9...4.2 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.60...9.00 travel mm

rpm : 880 2nd speed

travel mm : 4.90...5.10

rpm : 500 3rd speed

: 2.70...3.30 travel mm

rpm : 300 4th speed

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

: 99.0...101.0 bel.quantity

1000 : (97.0...103.0) : 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 117...125

Testing:

1st rack travel in: 10.50

813

rpm Speed : 1340...1350 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 62...70 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 4.05 Testing: Speed CCU : 200 Minimum rack trave: 5.00 Speed rpm : 300 Rack travel in mm : 3.90...4.20 Aneroid/Altitude Compensator Test 1st version Setting beed : 500 man hPa : 1000 Pressure Rack travel mm : 11.50...11.60 Measurement 1/min: 500 Speed 1st pressure hPa :-Rack travel in m: 8.70...8.90 2nd pressure hPa : 300 Rack travel in m: 9.40...9.6000 3rd pressure hPa : 500 Rack travel in m: 10.80...11.00 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed : 1300 rpm Del.quantity cm3/: 99.0...101.0 1000 s: (97.0...103.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: 1000 Speed rpm : 750 Del.quantity cm3/ : 90.5...93.5 1000 s: (88.0...96.0) cm3 : 5.00 Spread 1000 s: (7.00) Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 35.0...37.0 1000 s: (33.0...39.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0 1000 s: (112.0...128.0)

LOW IDLE

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

B14

Note remarks

Test sheet : MB 6,1 I 1 Edition : 09.02.94 Replaces : 06.92

Test oil : ISO-4113

Combination no. : 0 403 246 032

Injection pump

Pump designation : PES6MW100/720RS1515

EP type number : 0 413 206 013

Governor

Governor design. : RQV300...1300MW125-5

Governer no. : 0 420 083 285

Customer-spec. information Customer : MB-NFZ

Engine : 0M366LA

1st version kW : 142.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 688 901 101 assembly

Opening.

pressure, bar : 207...210

Test lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 5.20...5.30

: (5.15...5.35)

Rack travel in mm : 21.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rom : 1300

Rack travel in mm: 12.50...12.60

Del.guantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0Rack travel in mm: 4.2...4.4 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.60...9.00

rpm : 880 2nd speed

: 4.90...5.10 travel mm

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1100

: 110.0...112.0 Del.quantity

1000 : (108.0...114.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 120...128

Testing:

1st rack travel in: 11.50

B15

: 1340...1350 Speed rom 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 62...70 Setting point wout bumper spring rpm : 300 Rack travel in mm: 4.3 Testing: Speed : 200 rrem. Minimum rack trave: 5.00 rpm : 300 Rack travel in mm : 4.20...4.40 Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 500 hPa : 1100 Pressure Rack travel mm : 12.50...12.60 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 9.00...9.10 2nd pressure hPa : 250 Rack travel in m: 9.70...9.90 3rd pressure hPa : 500 Rack travel in m: 11.45...11.65 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 Speed rpm : 1300 Del.quantity cm3/ : 110.0...112.0 1000 s: (108.0...114.0) Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: 1100 Speed : 750 rpm Del.quantity cm3/: 105.0...108.0 1000 s: (102.5...111.5) cm3 : 5.00Spread 1000 s: (7.00)

Speed rpm : 500
Del.quantity cm3/ : 37.0.,39.0
1000 s: (35.0...41.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 115.0...125.0
1000 s: (112.0...128.0)

Speed rpm : 300
Rack travel in mm : 4.20...4.40
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Aneroid pressure h: -

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB Test sheet : 10.02.94 Edition Replaces : 07.92 Test oil : ISO-4113 Combination no. : 0 403 246 033 Injection pump Pump designation : PES6MW100/720RS1511 EP type number : 0 413 206 011 Governor Governor design.: RQV300...1300Mw125-6 : 0 420 083 286 Governer no. Customer-spec. information : MERCEDES-BENZ Customer : 0M366LA Engine 1st version kW : 156.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 688 901 101 assembly Opening pressure, bar : 207...210 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.50x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 5.20...5.30 : (5.15...5.35) Rack travel in mm : 21.00...0.00 **B17**

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 11.5...11.7 100 s: (11.3...11.9) Spread cm3 : 0.3100 s: (0.6) rpm : 300.02nd speed Rack travel in mm: 4.1...4.3 Del.quantity cm3/ : 1.0...1.4 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 : 8.60...9.00 travel mm 2nd speed rpm : 880 : 4.90...5.10 travel mm 3rd speed rpm : 500 : 2.70...3.30 travel mm rpm : 300 4th speed : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version

Speed rpm : 1300 Aneroid pressure h: 1400 Del.quantity : 115.0...117.0 1000 : (113.0...119.0) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 118...126 Testina: 1st rack travel in: 11.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1455...1485 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 61...69 Testing: Speed rpm : 200 Minimum rack trave: 5.00 Speed rpm : 300 Rack travel in mm : 4.10...4.30 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : 1400 Rack travel mm : 12.60...12.70 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 6.60...6.80 2nd pressure hPa : 300 Rack travel in m: 7.20...7.40 3rd pressure hPa : 900 Rack travel in m: 11.90...12.10 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 rpm : 1300 Del.quantity cm3/: 115.0...117.0 1000 s: (113.0...119.0) cm3 : 5.00 Spread 1000 s: (7.00) Aneroid pressure h: 1400 rpm : 750 Speed

Del.quantity cm3/: 114.5...117.5

1000 s: (112.0...120.0)

Spread sm3 : 5.00 1000 s: (7.00) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 36.0...38.0 1000 s: (34.0...40.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.60

full load rack tr: 11.60 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 115.0...125.0 1000 s: (112.0...128.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

B18

Note remarks

Test sheet

: MB

Edition

: 10.02.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 246 034

Injection pump

Pump designation : PES6MW100/720RS1517

EP type number

: 0 413 206 015

Governor

Governor design.: RQV300...1300Mw132

Governer no.

: 0 420 083 291

Customer-spec. information Customer

: ME-NFZ

Engine

: 0M366LA

1st version kW

: 177.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 688 901 101

Opening |

pressure, bar

: 207...210

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 4.50...4.60 : (4.45...4.65)

Rack travel in mm : 21.00...0.00

B19

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm : 1300

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 12.8...13.0

100 s: (12.5...13.3)

Spread

Spread

cm3 : 0.4

100 s: (0.7)

2nd speed

rpm : 300.0

Rack travel in mm: 3.9...4.1

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.82...1.32 travel mm

rpm : 555 2nd speed

: 4.06...4.56 travel mm

3rd speed rpm : 720

travel mm : 4.61...5.11

rpm : 1100 4th speed

travel mm : 6.27...6.77

5th speed

rpm : 1355

travel mm : 8.21...8.71

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 1400 Del.quantity

: 128.0...130.0

1000 : (125.0...133.0)

Spread

: 4.00 cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 114...122

Testing: 1st rack travel in: 13.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1475...1505 Speed 4th rack travel in: 1600 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.0 Testing: Speed : 200 rom Minimum rack trave: 5.00 rpm : 300 Speed Rack travel in mm : 3.90...4.10 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 **MCL** Pressure hPa : 1400 Rack travel mm : 14.10...14.20 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 10.00...10.20 2rd pressure hPa : 500
Rack travel in m: 10.60...10.80
3rd pressure hPa : 850 Rack travel in m: 13.10...13.30 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 Speed rpm : 1300 Del.quantity cm3/ : 128.0...130.0 1000 s: (125.0...133.0) Spread cm3 : 6.001000 s: (9.0) Aneroid pressure h: 1400 : 750 rpm Del.quantity cm3/: 128.0...132.0 1000 s: (125.0...135.0)

Spread cm3 : 6.00 1000 s: (9.00) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 44.0...46.0 1000 s: (42.0...48.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...145.0 1000 s: (132.0...148.0)

LOW IDLE

Remarks:

B20

Note remarks

Test sheet : MB

Edition : 15.02.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 246 035

Injection pump

Pump designation: PES6MW100/720RS1517-

1

EP type number : 0 413 206 017

Governor

Governor design. : RQV300...1300MW132-2

Governer no. : 0 420 083 293

Customer—spec. information Customer : MB-NFZ

Engine : OM366LA

1st version kW : 125.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. *C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar : 1.50

Test nozzle holder

assembly : 0 688 901 101

Opening.

pressure, bar : 207...210

Test Lines : 1 680 750 089

Outside diameter x Wall thickness

x Length mm : 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.50...4.60

: (4.45...4.65)

Rack travel in mm : 21.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.95...12.05

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 4.0...4.2 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.77...1.27

2nd speed rpm: 490

travel mm : 2.0...2.5

3rd speed rpm: 710

travel mm : 2.78...3.28

4th speed rpm : 1100

travel mm : 4.51...5.01

5th speed rpm: 1353

travel mm : 6.45...6.95

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 112...120

Testing: 1st rack travel in: 11.0 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1455...1485 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 67...75 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.1 Testina: Speed : 200 rpm -Minimum rack trave: 5.00 rpm : 300 Speed Rack travel in mm: 4.0...4.2 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : 1200 Rack travel mm : 11.95...12.05 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.8...9.7 2nd pressure hPa : 150 Rack travel in m: 10.25...10.45 3rd pressure hPa : 300 Rack travel in m: 11.25...11.45 START CUT-OUT Speed 1/min: 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1300 Del.quantity cm3/: 101.0...103.0 1000 s: (99.0...105.0) cm3 : 3.50 Spread 1000 s: (6.0) Aneroid pressure h: 1000 : 750 Speed rpm Del.quantity cm3/: 91.5...94.5 1000 s: (89.0...97.0)

Spread cm3 : 5.50 1000 s: (7.00) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 93.5...96.5 1000 s: (91.0...99.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 52.0...54.0 1000 s: (50.0...56.0) BREAKAWAY

Speed rpm : 1340...1350
STARTING FUEL DELIVERY

full load rack tr: 11.0

Speed rpm : 100 Del.quantity cm3/: 110.0...120.0 1000 s: (107.0...123.0)

LOW IDLE

Remarks:

B22

Note remarks

Test sheet

Edition

: 15.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 246 036

Injection pump

Pump designation : PES6MW100/720RS1517

EP type number

: 0 413 206 015

Governor

Governor design. : RQV300...1300MW132-4

Governer no.

: 0 420 083 299

Customer-spec. information Customer

: MB-NFZ

Engine

: 0M366LA

1st version kW

: 155.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 688 901 101

Opening |

pressure, bar

: 207...210

Test lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test prossure, bar: 30...32

: 4.50...4.60

Prestroke mm

: (4.45...4.65)

Rack travel in mm : 21.00...0.00

B23

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

PASIC SETTING

1st speed

Spread

Spread

rpm : 1300

Rack travel in mm : 13.45...13.55

Del.quantity cm3/: 11.8....12.0

100 s: (11.6...12.2)

cm3 : 0.4

100 s: (0.7)

rpm : 300.02nd speed

Rack travel in mm : 3.9...4.1 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 0.77...1.27 travel mm

2nd speed rpm : 490

: 2.0...2.5 travel mm

3rd speed rpm : 710

: 2.78...3.28 travel mm

rpm : 1100 4th speed

: 4.51...5.01 travel mm

rpm : 1353 5th speed

: 6.45...6.95 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 114...122

1st rack travel in: 12.5 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1470...1500 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 4.0 Testing: Speed : 200 rpm Minimum rack trave: 5.00 : 300 Speed rpm Rack travel in mm: 3.9...4.1 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm Pressure hPa : 1000 : 13.45...13.55 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.1...10.3 2nd pressure hPa : 300 Rack travel in m: 10.7...10.9 3rd pressure hPa : 600 Rack travel in m: 12.5...12.7 START CUT-OUT 1/min: 200 (220) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1300 Speed Del.quantity cm3/: 118.0...120.0 1000 s: (116.0...122.0) Spread cm3 : 3.501000 s: (6.0) Aneroid pressure h: 1000 Speed : 750 rpm Del.quantity cm3/: 117.5...120.5 1000 s: (115.0...123.0)

Testing:

Spread cm3 : 5.50 1000 s: (7.00) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 117.5...120.5 1000 s: (115.0...123.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 50.0...52.0 1000 s: (48.0...54.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.5 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 125.0...135.0 1000 s: (122.0...138.0)

LOW IDLE

1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 12.00...14.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : PER : 10.02.94 Edition Phasing : 0-60-120-180-240-300 Replaces : 09.92 Test oil : ISO-4113 Tolerance + - ° : 0.50 (0.75)Combination no. : 0 403 436 114 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PES6MW100/320/3RS119 1st speed rpm : 1300 EP type number : 0 413 406 221 Governor Rack travel in mm : 14.10...14.20 Governor design. : RQV300...1300MW108K : 0 420 083 998 Governer no. Del.quantity cm3/: 13.25...13.45 Customer-spec. information 100 s: (12.95...13.75) Customer : PERKINS Spread cm3 : 0.3Engine : 180 TI 100 s: (0.6) 1st version kW : 134.0 Rated speed : 2600 2nd speed rpm : 300.0Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 1.4...1.8 100 s: (1.1...2.0) TEST BENCH REQUIREMENTS Test oil Spread cm3 : 0.3inlet temp. °C : 38...42 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Iniet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 Test nozzle holder travel mm : 10.00...10.40 : 1 688 901 101 assembly 2nd speed rpm : 900 travel mm : 6.40...6.60 Opening. 3rd speed : 480 rom pressure, bar : 207...210 travel mm : 3.10...3.70 4th speed : 300 rom travel mm : 1.40...1.80 Test Lines : 1 680 750 008 GUIDE SLEEVE POSITION Outside diameter Control-lever position x Wall thickness Degree: -1 x Length mm : 6.00X2.00X600 Speed rpm : 1380 Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values 1st version Speed rpm : 1300 BEGINNING OF DELIVERY Aneroid pressure h: 900 : 132.5...134.5 Test pressure, bar: 30...32 Del.quantity 1000 : (129.5...137.5) : 3.30...3.40 Prestroke mm Spread : 3.50 cm3

1000

: (6.00)

: (3.25. ..3.45)

Rack travel in m: 10.40...10.50 RATED SPEED 3rd pressure hPa : 220 Rack travel in m: 11.05...11.35 1st version Control lever START CUT-OUT position degrees: 118...126 Speed 1/min : 240 (250) Testing: 1st rack travel in: 13.15 FUEL DELIVERY CHARACTERISTICS rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1470...1500 Speed 1st version 4th rack travel in: 1600 Aneroid pressure h: 900 rpm : 0.00...1.00 rpm : 1300 Speed Speed Del.quantity cm3/: 132.5...134.5 1000 s: (129.5...137.5) LOW IDLE 1 Control lever cm3 : 4.00Spread position degrees: 70...78 1000 s: (7.5) Setting point w/out bumper spring Aneroid pressure h: 900 rpm : 300 : 800 Speed rpm Rack travel in mm : 6.6 Del.quantity cm3/: 124.0...128.0 1000 s: (121.0...131.0) Testina: Spread cm3 : 6.0Speed 1000 s: (9.0) rpm : 200 Minimum rack trave: 8.00 Ameroid pressure h: 900 rpm : 300 Speed rpm : 500 Del.quantity cm3/: 106.0...110.0 1000 s: (103.0...113.0) Rack travel in mm : 6.50...6.70 CONSTANT REGULATION Aneroid pressure h: rpm : 330...500 Speed Speed rpm : 500 Del.quantity cm3/: 61.0...63.0 TORQUE CONTROL 1000 s: (59.0...65.0) Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 14.10...14.20 BREAKAWAY 2nd speed rpm : 800 Rack travel in m: 13.10...13.30 1st version 3rd speed rpm : 500 1mm rack travel less than Rack travel in m: 11.60...11.80 4th speed rpm : 1000 Rack travel in m: 13.45...13.75 full load rack tr: 13.15 rpm : 1340...1350 Speed 5th speed rpm : 700 Rack travel in m: 12.60...12.90 STARTING FUEL DELIVERY Aneroid/Altitude Compensator Test Speed rpm : 100 Del.quantity cm3/: 78.0...92.0 1000 s: (75.0...95.0) Rack travel in mm : 19.00...21.00 1st version Setting Speed : 1300 man LOW IDLE hPa : 900 Pressure Rack travel mm : 14.10...14.20 Speed rpm : 300 Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 14.0...18.0 Measurement 1/min: 1300 Speed 1000 s: (11.5...20.5) cm3 : 3.50 Spread 1st pressure hPa : -1000 s: (5.50) Rack travel in m: 9.20...9.40 2nd pressure hPa : 180 Remarks:

Start-of-delivery blocking 46.5° before start of delivery of cylinder 1

Note remarks

Test sheet

Edition

: 15.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 444 151

Injection pump

Pump designation : PES4MW100/720RS1235

EP type number

: 0 413 404 121

Governor

Governor design. : RQV300...1300MW139

Governer no.

: 0 420 083 304

Customer-spec. information Customer

: MB

Engine

: 0M364A

1st version kW

: 79

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening .

pressure, bar

: 172...175

Test Lines

: 1 680 750 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.65...3.75 : (3.6...3.8)

Rack travel in mm: 19...21

B28

Firing order : 1-3-4-2

Phasing

: 0-90-180-270

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1300

Rack travel in mm : 12.65...12.75

Del.quantity cm3/: 8.2...8.4

100 s: (8.0...8.6)

Spread

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.75...7.95

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300 travel mm

: 1.02.. 1.52

2nd speed

rpm : 390

travel mm

: 2.14...2.64

3rd speed travel mm rpm : 550 : 3.31...3.81

4th speed

rpm : 1354

travel mm

: 10.06...10.56

GUIDE SLEEVE POSITION Control-lever position

Degree: 113...121

rpm : 1430

Rack travel in mm : 9.5...10.5

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700

Del.quantity : 82.0...84.0

1000 : (80.0...86.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version cm3 : 5.00 Spread Control lever 1000 s: (7.00) position degrees: 109...117 Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 46.0...48.0 Testing: 1st rack travel in: 9.8 1000 s: (44.0...50.0) rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1440...1470 Speed BREAKAWAY 4th rack travel in: 1550 rpm : 0.00...1.00 Speed 1st version 1mm rack travel less than LOW IDLE 1 Control lever full load rack tr: 9.8 position degrees: 69...77 rpm : 1340...1350 Speed Testing: STARTING FUEL DELIVERY Speed : 200 rpm Minimum rack trave: 9.5 : 300 Speed rpm rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm : 7.75...7.95 Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 300 1st version Rack travel in mm : 7.75...7.95 Setting Del.quantity cm3/: 10.0...14.0 Speed rpm : 500 1000 s: (7.5...16.5) hPa : 700 Pressure cm3 : 3.50 Spread Rack travel mm : 13.40...13.50 1000 s: (5.50) Measurement Remarks: Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 12.1...12.2 2nd pressure hPa : 150 Rack travel in m: 12.55...12.75
3rd pressure hPa : 210
Rack travel in m: 12.95...13.15 START CUT-OUT 1/min: 200 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/ : 75.0...78.0 1000 s: (72.5...80.5)

CO1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet Edition : 16.02.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 444 152 Injection pump Pump designation : PES4MW100/720RS1235 EP type number : 0 413 404 121 Governor Governor design. : RQV300...1300MW140 : 0 420 083 305 Governer no. Customer-spec. information Customer : MB Engine : OM364A 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 089 Outside diameter x Wall thickness x Length mm : 8.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING C: DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.65...3.75 : (3.6...3.8) Rack travel in mm: 19...21 CO2

Firing order : 1- 3- 4- 2 Phasing : 0-90-180-270 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 1300 Rack travel in mm : 12.65...12.75 Del.quantity cm3/: 8.2...8.4 100 st (8.0...8.6) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 7.75...7.95 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 300 : 1.02...1.52 travel mm rpin : 390 2rnd speed : 2.14...2.64 travel mm 3rd speed rpm : 510 travel mm : 3.31...3.81 rpm : 1354 4th speed travel mm : 10.06...10.56 GUIDE SLEEVE POSITION Control-lever position Degree: 113...121 beed rpm : 1430 Rack travel in mm : 9.5...10.5 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 700 Deliquantity 1000 : 82.0...84.0 : (80.0...86.0) Spread cm3 : 3.50 1000 : (6.00)RATED SPEED

1st version Del.quantity cm3/: 75.0...78.0 Control lever 1000 s: (72.5...80.5) position degrees: 109...117 cm3 : 5.00 Spread 1000 s: (7.00) Testing: Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 46.0...48.0 1000 s: (44.0...50.0) 1st rack travel in: 10.7 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1405...1435 4th rack travel in: 1550 Speed rpm : 0.00...1.00 **BREAKAWAY** LOW IDLE 1 1st version Control lever 1mm rack travel less than position degrees: 69...77 full load rack tr: 11.70 Testing: rpm : 1340...1350 Speed Speed : 200 rpm Minimum rack trave: 9.5 STARTING FUEL DELIVERY Speed rpm : 300 Rack travel in mm : 7.75...7.95 Rack travel in mm: 2.0 Speed rpm : 100 Speed rom : 495...555 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 300 Rack travel in mm : 7.75...7.95 1st version Setting Del.quantity cm3/: 10.0...14.0 Speed rpm : 500 1000 s: (7.5...16.5) Pressure hPa : 700 Spread cm3 : 3.50Rack travel mm : 13.4...13.5 1000 s: (5.50) Measurement Remarks: Speed 1/min: 500 : MB #G240742702 1st pressure hPa : -Rack travel in m: 12.1...12.2 2nd pressure hPa : 150 Rack travel in m: 12.55...12.75 3rd pressure hPa : 210 Rack travel in m: 12.95...13.15 START CUT-OUT Speed 1/min : 200 (230) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 1300 Speed rpm Del.quantity cm3/: 82.0...84.0 1000 s: (80.0...86.0) cm3 : 3.50 Spread 1000 s: (6.00) Aneroid pressure h: 700 Speed rpm : 600

CO3

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1- 3- 4- 2 Note remarks Test sheet : MB Phasing : 0-90-180-270 Edition : 15.02.94 Replaces Tolerance $+ - \circ : 0.50 (0.75)$ Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 444 153 rpm: 1300 1st speed Injection pump Pump designation : PES4MW100/720RS1127 Rack travel in mm : 11.1...11.2 EP type number : 0 413 404 103 Governor Del.quantity cm3/: 8.0...8.2 Governor design. : RQV300...1300MW48-3 : 0 420 083 110 Governer no. 100 s: (7.8...8.4) Customer-spec. information Spread cm3 : 0.3Customer : MB 100 s: (0.6) Engine : OM364A 2nd speed rpm : 300.0Rack travel in mm: 7.8...7.9 1st version kW : 85 Del.quaritity cm3/: 0.9...1.3 Rated speed : 2600 100 s: (0.7...1.6) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 (B) Setting of injection pump with governor Overflow valve : 1 417 413 047 GUIDE SLEEVE TRAVEL rpm : 300 1st speed : 1.15...1.65 Inlet press., bar: 1.50 travel mm 2nd speed rpm : 363 Test nozzle holder travel mm : 1.8...2.3 : 0 681 343 009 assembly 3rd speed rpm : 490 : 2.68...3.18 travel mm Opening rpm : 1345 4th speed pressure, bar : 172...175 : 8.34...8.84 travel mm GUIDE SLEEVE POSITION Test Lines : 1 680 750 015 Control-lever position Degree: -1 Outside diameter rpm : 1330 Speed x Wall thickness Rack travel in mm : 15.2...17.8 : 6.00x2.00x600 x Length mm FULL LOAD DELIV. AT FULL LOAD STOP (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. rpm : 1300 Speed per values : 80.0...82.0 Del.quantity 1000 : (78.0...84.0) BEGINNING OF DELIVERY Spread cm3 : 3.50 Test pressure, bar: 30...32 1000 : (6.00) Prestroke mm : 3.7...3.8 RATED SPEED : (3.65...3.85) Rack travel in mm: 9...12 1st version

C04

Control lever position degrees: 108...116 Testing: 1st rack travel in: 10.1 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1430...1460 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 75...83 Testing: Speed : 200 rpm Minimum rack trave: 9.5 Speed rpm : 300 Rack travel in mm : 7.8...7.9 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rom : 1300 Del.quantity cm3/: 80.0...82.0 1000 s: (78.0...84.0) Spread cm3 : 3.501000 s: (6.00) rpm : 750 Speed Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0) Spread cm3 : 5.001000 s: (7.00) Speed rpm : 585 Del.quantity cm3/: 71.5...74.5 1000 s: (69.0...77.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.1 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE

05

Speed rpm : 300
Rack travel in mm : 7.8...7.9
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet

: MB

Edition

: 10.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 446 320

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number

: 0 413 406 123

Governor

Governor design. : RQV300...1300MW67-8

Governer no.

: 0 420 083 290

Customer

Customer-spec. information : MB-NFZ

Engine

: OM 366 A

1st version kW

Rated speed

: 121.0 : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 715 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

CO6

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1300

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

Spread

cn3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.4...5.6

Del.quantity cm3/: 1.0...1.4

Spread

100 s: (0.7...1.6) cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1450

travel mm

: 9.50...9.90

2nd speed

rpm : 1350

travel mm

: 8.60...8.80

3rd speed

rpm : 500

travel mm 4th speed

: 2.70...3.30 : 300 rom

travel mm

: 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700 Del.quantity

: 88.0...90.0

Spread

1000 : (86.0...92.0)

: 3.50

cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 109...117

Testina:

1st rack travel in: 9.50

Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1415 ... 1445 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 200 Minimum rack trave: 7.00 rpm : 300 Rack travel in mm : 5.40...5.60 Ameroid/Attitude Compensator Test 1st version Settina Speed : 500 rpm Pressure hPa : 700 Rack travel mm : 11.20...11.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.20...9.30 2nd pressure hPa : 300 Rack travel in m: 9.70...9.90 3rd pressure hPa : 400 Rack travel in m: 10.40...10.60 START CUT-OUT Speed 1/min : 220 (240) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 1300 Speed Del.quantity cm3/: 88.0...90.0 1000 s: (86.0...92.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: 700 Speed rpm : 850 Del.quantity cm3/: 88.0...91.0 1000 s: (85.5...93.5) Spread cm3 : 5.00 1000 s: (7.00) Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/: 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.50

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0)

LOW IDLE
Speed rpm : 300

Rack travel in mm : 5.40...5.60 Del.quantity cm3/ : 10.0...14.0 1000 s: (7.5...16.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

CO7

Note remarks

Test sheet

: MB

Edition

: 15.02.94

Replaces

Test cil

: ISO-4113

Combination no. : 0 403 446 321

Injection pump

Pump designation : PES6MW100/720RS1131

EP type number

: 0 413 406 123

Governor

Governor design. : RQV300...1300MW50-31

Governer no.

: 0 420 083 294

Customer

Customer-spec. information : MB-NFZ

Engine

: OM 366 A

1st version kW

: 121.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening.

pressure, bar

: 172...175

Test lines

: 1 680 715 089

Outside diameter

x Wall thickness

x Length mm

: 8.00X2.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

CO8

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

Spread

Spread

rpm: 1300

Rack travel in mm: 10.50...10.60

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 300.0

Rack travel in mm: 5.4...5.6

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 300 1st speed

: 1.15...1.65 travel mm

rpm : 510 2nd speed

: 4.03...4.53 travel mm

3rd speed rpm : 710

travel mm : 4.91...5.41

4th speed travel inn

rpm : 1354

: 8.03...8.43

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300

Aneroid pressure h: 700 Del.quantity : 80.0...92.0)

Spread

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Testing:

1st rack travel in: 9.50

rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 84...92 Setting point w/out bumper spring : 300 rom Rack travel in mm: 5.5 Testing: Speed : 200 rpm Minimum rack trave: 7.00 man Rack travel in mm : 5.40...5.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 700 Speed man Pressure Rack travel mm : 11.20...11.40 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.20...9.30 2nd pressure hPa : 300 Rack travel in m: 9.70...9.90 3rd pressure hPa : 400 Rack travel in m: 10.40...10.60 START CUT-OUT 1/min: 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm_ : 1300 Speed Del.quantity cm3/: 88.0...90.0 1000 s: (86.0...92.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 700 Speed : 850 rpm Del.quantity cm3/: 88.0...91.0 1000 s: (85.5...93.5) cm3 : 5.00 Spread 1000 s: (7.00) Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 49.0...51.0 1000 s: (47.0...53.9)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.50 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 80.0...90.0 1000 s: (77.0...93.0)

LOW IDLE

Remarks:

Note remarks

Test sheet

Edition

: 15.02.94

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 324

Injection pump

Pump designation

: PES6MW100/720RS1131-

EP type number

: 0 413 406 165

Governor

Governor design. : RQV300...1300MW136

Governer no.

: 0 420 083 300

Customer

Customer-spec. information : MB-NF7

Engine

: 0M 366 LA

1st version kW

Rated speed

: 177.0 : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening |

pressure, bar

: 172...175

Test lines

: 1 680 715 089

Outside diameter

x Wall thickness

x Length mm

: 8.00x2.50x600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.6...3.7

: (3.55...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm : 1300

Rack travel in mm : 14.4...14.5

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed

rpm : 300.0

Rack travel in mm: 6.5...6.7

Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

: 0.89...1.39 travel mm

2nd speed rpm : 578

: 4.46...4.96 travel mm

3rd speed rpm : 640

: 4.85...5.35 travel mm : 1355

4th speed rpm travel mm

: 9.93...10.43

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity

: 114.0...116.0 1000 : (112.0...118.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 110...118

Testing:

C10

1st rack travel in: 13.4 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring man : 300 Rack travel in mm: 6.6 Testing: Speed rpm : 200 Minimum rack trave: 8.00 rpm : 300 Rack travel in mm: 6.5...6.7 Aneroid/Altitude Compensator Test 1st version Settina Speed rpm : 500 hPa : 1000 Pressure Rack travel mm : 14.4...14.5 Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 10.95...11.05 2nd pressure hPa : 200 Rack travel in m: 11.25...11.45 3rd pressure hPa : 500 Rack travel in m: 13.95...14.15 START CUT-OUT 1/min : 220 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1300 Speed Del.quantity cm3/: 114.0...116.0 1000 s: (112.0...118.0) Spread cm3 : 3.501000 s: (6.0) Aneroid pressure h: 1000 Speed rpm : 750
Del.quantity cm3/ : 104.5...107.5
1000 s: (102.0...110.0) Spread cm3 : 5.001000 s: (7.00)

Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 41.0...43.0 1000 s: (39.0...43.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.4 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 6.5...6.7 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MAN 7,2 0
Edition : 16.02.94
Replaces : 04.89
Test oil : ISO-4113

Combination no. : 0 403 456 104

Injection pump

Pump designation : PES6MW100/321RS1180

EP type number : 0 413 406 163

Governor

Governor design. : RQ250/1200MW84-1 Governor no. : 0 420 082 037

Customer-spec. information Customer : MAN

Engine : D 0826 LUH

1st version kW : 157.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65)
Rack travel in mm : 15.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.6...11.7

Del.quantity cm3/: 12.6...12.8

100 s: (12.3...13.1)

Spread cm3: 0.4

100 s: (0.7)

2nd speed rpm : 250.0
Rack travel in mm : 5.2...5.4
Del.quantity cm3/ : 1.8...2.2

100 s: (1.55...2.45)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1320 travel mm : 8.6...9.0 2nd speed rpm : 1260 travel mm : 6.5...6.7 3rd speed rpm : 350

travel mm : 3.4...4.0

4th speed rpm : 250 travel mm : 1.5...2.1

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

peed rpm: 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 126.0...128.0

1000 : (123.0...131.0)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED Spread cm3 : 4.001000 s: (7.5) 1st version Aneroid pressure h: 1000 Control Lever Speed : 600 rpm Del.quantity cm3/: 123.0...127.0 position degrees: 26...34 1000 s: (120.0...130.0) Setting point: Spread cm3 : 6.00Speed : 600 1000 s: (9.00) Rack travel in mm: 20.0 Aneroid pressure h: 1000 Speed rpm : 80C Del.quantity cm3/: 125.0...129.0 1000 s: (122.0...132.0) Testing: 1st rack travel in: 10.6 rpm : 1245...1260 Speed Aneroid pressure h: Speed rpm : 500 Del.quantity cm3/: 74.0...76.0 2nd rack travel in: 4.00 Speed rpm : 1305...1335 4th rack travel in: 1450 1000 s: (72.0...78.0) rpm : 0.00...1.00Speed LOW IDLE 1 **EREAKAWAY** Control lever position degrees: 6...14 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm: 5.3 full load rack tr: 10.6 Speed rpm : 1245...1260 Testina: rpm : 100 Speed STARTING FUEL DELIVERY Minimum rack trave: 7.3 rpm : 250 Speed Rack travel in mm: 5.2...5.4 : 100 Speed rpm Del.quantity cm3/ : 130.0...140.0 Ameroid/Altitude 1000 s: (127.0...143.0) Compensator Test LOW IDLE 1st version rpm : 250 Speed Setting Rack travel in mm : 5.2...5.4 Speed man : 500 Del.quantity cm3/: 18.0...22.0 hPa : 1000 Pressure 1000 s: (15.5...24.5) Rack travel mm : 11.6...11.7 cm3 : 3.50 Spread 1000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #2-7986 1st pressure hPa : -Rack travel in m: 9.30...9.40 2nd pressure hPa : 200 Rack travel in m: 9.6...9.7 3rd pressure hPa : 400 Rack travel in m: 10.9...11.2 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1000 Speed Del.quantity cm3/: 126.0...128.0 1000 s: (123.0...131.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,2 Q Edition : 16.02.94 Replaces : 11.89 Test oil : ISO-4113 Combination no. : 0 403 456 105 Injection pump Pump designation : PES6MW100/321RS1186 EP type number : 0 413 406 168 Governor Governor design. : RQ250/1200MW84-2 : 0 420 082 040 Governer no. Customer-spec. information Customer : MAN Engine : D 0826 LUH 1st version kW : 157.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Openina pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Lenath mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 15.00...0.00 C14

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rom: 1000 Rack travel in mm : 14.7...14.8 Del.quantity cm3/: 12.6...12.8 100 s: (12.3...13.1) Spread cm3 : 0.4100 s: (0.7) rpm : 250.02nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55) Spread cm3 : 0.3 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1280 : 9.5...9.9 travel mm rpm : 1250 2nd speed : 7.5...7.7 travel mm

: 350 3rd speed man : 5.2...5.8 travel mm 4th speed : 250 rpm travel mm : 2.3...2.7

GUIDE SLEEVE POSITION Control-lever position Degree: 108...110 rpm : 600 Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1000 Aneroid pressure h: 1000 : 126.0...128.0 Del.quantity 1000 : (123.0...131.0) Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED 1st version Control lever position degrees: 38...46 Setting point: Speed rpm : 600 Rack travel in mm: 15.5 Testing: 1st rack travel in: 13.8 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 rpm : 1285...1315 Speed 4th rack travel in: 1450 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring rpm : 250 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 7.5 Speed man Rack travel in mm: 5.4...5.6 Aneroid/Altitude Compensator Test 1st version Setting Speed rom : 500 hPa : 1000 Pressure Rack travel mm : 14.8...14.9 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 12.2...12.3 2nd pressure hPa : 200 Rack travel in m: 12.7...12.8 3rd pressure hPa : 400 Rack travel in m: 13.8...14.1 FUEL DELIVERY CHARACTERISTICS

Spread cm3 : 4.001000 s: (7.5) Aneroid pressure h: 1000 : 600 rpm Del.quantity cm3/: 126.0...130.0 1000 s: (123.0...133.0) Spread cm3 : 6.001000 s: (9.00) Aneroid pressure h: 1000 besed Lt.4D : 800 Del.quantity cm3/: 126.0...130.0 1000 s: (123.0...133.0) Aneroid pressure h: rpm_ : 500 Speed Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.8 rpm : 1245...1260 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0) LOW IDLE Speed rpm : 250 Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: : MAN #3-7008

Speed

1st version

Aneroid pressure h: 1000

rpm Del.quantity cm3/: 126.0...128.0

: 1000

1000 s: (123.0...131.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,2 R Edition : 16.02.94 Replaces : 11.89 Test oil : ISO-4113 Combination no. : 0 403 456 106 Injection pump Pump designation : PES6MW100/321RS1190 EP type number : 0 413 406 176 Governor Governor design: RQ250/1300MW84 : 0 420 082 029 Governer no. Customer-spec. information Customer : MAN Engine : D 0826 LF 1st version kW : 165.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test rozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm : (3.2...3.4) Rack travel in mm : 15.00...0.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.9...15.0

Del.quantity cm3/: 13.3...13.5

100 s: (13.0...13.8)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.02nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55)

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

Spread

rpm : 1440 1st speed : 8.7...9.1 travel mm rpm : 1360 2nd speed : 6.3...6.5 travel mm rpm : 380 3rd speed : 4.1...4.7 travel mm rpm : 250 4th speed travel mm : 1.5...1.9

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 600 Speed Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 133.0...135.0 1000 : (130.0...138.0)

: 4.00 Spread cm3 1000 : (7.50)

RATED SPEED Spread cm3 : 4.001000 s: (7.5) 1st version Aneroid pressure h: 1000 Control lever Speed rpm : 600 Del.quantity cm3/: 132.0...136.0 position degrees: 33...37 1000 s: (129.0...139.0) Setting point: cm3 : 6.00Spread Speed : 600 1000 s: (9.00) rpm Rack travel in mm: 20 Aneroid pressure h: 1000 : 800 rpm Del.quantity cm3/: 133.0...137.0 1000 s: (130.0...140.0) Testing: 1st rack travel in: 13.9 rpm : 1345...1360 Aneroid pressure h: -2nd rack travel in: 4.00 Speed rpm : 500 Del.quantity cm3/ : 74.0...75.0 rpm : 1450...1480 Speed 4th rack travel in: 1530 1000 s: (72.0...78.0) rpm : 0.00...1.00Speed LOW IDLE 1 **BREAKAWAY** Control lever position degrees: 7...15 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm: 5.5 full load rack tr: 13.9 rpm : 1345...1360 Speed Testing: Speed rpm : 100 STARTING FUEL DELIVERY Minimum rack trave: 7.0 rpm : 250 Rack travel in mm: 5.4...5.6 Speed rpm : 100 Del.quantity cm3/: 130.0...140.0 Aneroid/Altitude 1000 s: (127.0...143.0) Compensator Test LOW IDLE 1st version Speed rpm : 250 Setting Rack travel in mm: 5.4...5.6 : 500 Speed Del.quantity cm3/: 19.0...23.0 man hPa : 1000 Pressure 1000 s: (16.5...25.5) Rack travel mm : 14.9...15.0 cm3 : 3.50 Spread 1000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #3-7020 1st pressure hPa : -Rack travel in m: 11.9...12.0 2nd pressure hPa : 180 Rack travel in m: 12.6...12.7 3rd pressure hPa : 385 Rack travel in m: 13.7...14.0 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1000 Del.quantity cm3/ : 133.0...135.0 1000 s: (131.0...138.0)

Note remarks

: MAN 7,2 V Test sheet Edition ; 16.02.94 Replaces : 11.91 Test oil : ISO-411色

Combination no. : 0 403 456 110

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number : 0 413 406 190

Governor

Governor design. : RQ250/1200Mw84-3 : 0 420 082 043 Governer no.

Customer-spec. information : MAN Customer

Engine : D 0826 LF02

: 169.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6

: (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 12.8...12.9

Del.quantity cm3/: 14.1...14.3

100 s: (13.8...14.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.02nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.8...2.0 100 s: (1.75...2.45)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1300 1st speed : 8.4...8.8 travel mm rpm : 1260 2nd speed travel mm : 6.6...6.8 rpm : 345 3rd speed

: 4.0...4.6 travel mm rpm : 250 4th speed

: 1.8...2.2 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 600 Speed

Rack travel in mm : 18.2...19.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000 Del.quantity : 141.0...143.0

1000 : (138.0...146.0)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED cm3 : 4.00Spread 1000 s: (7.5) 1st version Aneroid pressure h: 1000 Control lever : 600 Speed המח Del.quantity cm3/: 139.0...143.0 1000 s: (136.0...146.0) position degrees: 92...100 Setting point: cm3 : 6.00Spread Speed rpm : 600 1000 s: (9.00) Rack travel in mm : 19 Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity_cm3/ : 136.0...140.0 Speed 1200 Testing: 1st rack travel in: 11.3 1000 s: (133.0...143.0) rpm : 1245...1260 Speed Aneroid pressure h: -2nd rack travel in: 4.00 rpm : 500 Speed rpm : 1290...1330 Del.quantity cm3/: 74.0...76.0 Speed 4th rack travel in: 1400 1000 s: (72.0...78.0) Speed rpm : 0.00...1.00 LOW IDLE 1 **BREAKAWAY** Control lever position degrees: 69...77 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm: 5.5 full load rack tr: 11.3 Speed rpm : 1245...1260 Testing: Speed rpm : 100 STARTING FUEL DELIVERY Minimum rack trave: 7.0 : 250 rpm Rack travel in mm: 5.4...5.6 : 100 Speed man Del.quantity cm3/: 60.0...80.0 Aneroid/Altitude 1000 s: (57.0...83.0) Compensator Test LOW IDLE 1st version Speed rpm : 250 Setting Rack travel in mm: 5.4...5.6 Speed : 500 Del.quantity cm3/: 16.0...20.0 man 1000 s: (13.5...22.5) cm3 : 3.50 hPa : 1000 Pressure : 12.65...12.95 Rack travel mm Spread 1000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #3-7035 1st pressure hPa : -Rack travel in m: 10.0...10.1 2nd pressure hPa : 155 Rack travel in m: 10.3...10.4 3rd pressure hPa : 550 Rack travel in m: 11.9...12.2 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 800 CDM Del.quantity cm3/: 141.0...143.0 1000 s: (138.0...146.0)

Note remarks

Test sheet : MAN 7,2 Q Edition : 16.02.94 Replaces : 08.91 Test oil : ISO-4113

Combination no. : 0 403 456 111

Injection pump

Pump designation : PES6MW100/321RS1186

EP type number : 0 413 406 186

Governor:

Governor design. : RQ250/1200MW84-4 Governor no. : 0 420 082 044

Customer—spec. information Customer : MAN

Engine : D 0826 LUH

1st version kW : 157.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. *C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

× Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6 : (3.45...3.65)

Rack travel in mm : 15.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack cravel in mm: 12.7...12.8

Del.quantity cm3/ : 13.3...13.5

100 s: (13.0...13.8)

Spread cm3: 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.9...2.3

100 s: (1.65...2.35)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1280 travel mm : 9.5...9.9 2nd speed rpm : 1250 travel mm : 7.5...7.7

3rd speed rpm : 350

travel mm : 5.2...5.8 4th speed rpm : 250

travel mm : 2.2...2.6

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110 Speed rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1000

Del.quantity : 133.0...135.0 1000 : (130.0...138.0)

Spread cm3 : 4.00

1000 : (7.50)

1000 s: (7.5) 1st version Aneroid pressure h: 1000 Control lever Speed : 600 rtm Del.quantity cm3/: 131.5...135.5 position degrees: 104...112 1000 s: (128.5...138.5) Setting point: Spread cm3 : 6.00Speed : 600 1000 s: (9.00) rpm Rack travel in mm: 15.5 Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity cm3/: 129.5...133.5 1000 s: (126.5...136.5) Testing: 1st rack travel in: 11.5 rpm : 1245...1260 Speed Aneroid pressure h: -2nd rack travel in: 4.00 rpm : 500 Speed Speed rpm : 1290...1330 4th rack travel in: 1400 Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) Speed rpm : 0.00...1.00LOW IDLE 1 **BREAKAWAY** Control lever position degrees: 70...78 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Speed Rack travel in mm: 5.6 full load rack tr: 11.5 rpm : 1245...1260 Speed Testing: Speed : 100 rpm STARTING FUEL DELIVERY Minimum rack trave: 7.0 Speed : 250 rpm Rack travel in mm: 5.5...5.7 Speed rpm : 100 Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0) Aneroid/Altitude Compensator Test LOW IDLE 1st version Speed rpm : 250 Setting Rack travel in mm : 5.5...5.7 Speed : 500 Del.quantity cm3/: 19.0...23.0 mqn Pressure hPa : 1000 1000 s: (16.5...25.5) Rack travel mm : 12.8...12.9 cm3 : 3.50Spread 1000 s: (5.50) Measurement $1/\min : 500$ Speed Remarks: : MAN #3-7008 1st pressure hPa : -Rack travel in m: 10.0...10.1 2nd pressure hPa : 200
Rack travel in m: 10.3...10.4
3rd pressure hPa : 500 Rack travel in m: 12.0...12.3 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 1000 Speed Del.quantity cm3/: 133.0...135.0 1000 s: (130.0...138.0)

Spread

cm3 : 4.00

RATED SPEED

Note remarks

Test sheet : MAN 7,3 A
Edition : 16.02.94
Replaces : 08.91
Test oil : ISO-4113

Combination no. : 0 403 456 112

Injection pump

Pump designation : PES6MW100/321RS1190 EP type number : 0 413 406 176

Governor

Governor design. : RQ250/1100MW84-5 Governer no. : 0 420 082 046

Customer—spec. information Customer : MAN

Engine : D 0826 L0H05

1st version kW : 150.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. *C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35

: (3.2...3.4)

Rack travel in mm : 15.00...0.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 14.7...14.8

Del.quantity cm3/: 13.2...13.4

100 s: (12.9...13.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.9...2.3

100 s: (1.65...2.35)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1200 travel mm : 9.3...9.7 2nd speed rpm : 1100 travel mm : 7.3...7.5 3rd speed rpm : 470 travel mm : 6.7...7.3 4th speed rpm : 250

travel mm : 1.4...1.8

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

Speed rpm: 600

Rack travel in mm : 16.0...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 1000

Del.quantity : 132.0...134.0

1000 : (129.0...137.0) cm3 : 4.00

Spread cm3 : 4.00 1000 : (7.50)

C22

Spread cm3 : 4.001000 s: (7.5) 1st version Aneroid pressure h: 1000 Control lever rpm : 600 Speed position degrees: 96...104 Del.quantity cm3/: 130.5...134.5 1000 s: (127.5...137.5) Setting point: Spread cm3 : 6.00 1000 s: (9.00) Rack travel in mm: 16.9 Aneroid pressure h: 1000 Speed rpm : 1100 Del.quantity cm3/ : 131.0...138.0 1000 s: (128.0...138.0) Testing: 1st rack travel in: 13.7 rpm : 1145...1160 Speed Aneroid pressure h: -2nd rack travel in: 4.00 rpm : 500 Speed Del.quantity cm3/: 74.0...76.0 rpm : 1190...1220 Speed 4th rack travel in: 1250 1000 s: (72.0...78.0) rpm : 0.00...1.00Speed LOW IDLE 1 BREAKAWAY Control lever position degrees: 67...75 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm: 5.5 full load rack tr: 13.7 Speed rpm : 1145...1160 Testing: rpm : 100 Speed STARTING FUEL DELIVERY Minimum rack trave: 7.0 rpm : 250 Rack travel in mm: 5.4...5.6 rpm : 100 Speed Del.quaritity cm3/: 70.0...90.0 1000 s: (67.0...93.0) Aneroid/Altitude Compensator Test LOW IDLE 1st version Speed rpm : 250 Rack travel in mm : 5.4...5.6 Setting : 500 Speed rom Del.quantity cm3/: 19.0...23.0 Pressure hPa : 1000 1000 s: (16.5...25.5) Rack travel mm : 14.7...14.9 cm3 : 3.50 Spread 1000 s: (5.50) Measurement Speed $1/\min : 500$ Remarks: : MAN #3-7115 1st pressure hPa : -Rack travel in m: 12.0...12.1 2nd pressure hPa : 250 Rack travel in m: 12.6...12.7 3rd pressure hPa : 450 Rack travel in m: 13.75...13.95 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 800 Del.quantity cm3/: 132.0...134.0 1000 s: (129.0.,.137.0)

RATED SPEED

Note remarks

Test sheet : MAN 7,3 C : 16.02.94 Edition

Replaces : 06.91 Test oil : ISO-4113

Combination no. : 0 403 456 113

Injection pump

Pump designation : PES6MW100/321RS1210

EP type number : 0 413 406 201

Governor

Governor design. : RQ250/1050MW84-6 : 0 420 082 049 Governer no.

Customer-spec. information Customer : MAN

: D 0826 LUH250 Engine

1st version kW : 184.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.5...3.6 Prestroke mm

: (3.3.45...3.65)

Rack travel in mm: 9.0...12.0

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Ruck travel in mm : 14.0...14.1

Del.quantity cm3/: 16.1...16.3

100 s: (15.8...16.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 1.3...1.7

100 s: (1.05...1.95) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1125 : 7.3...7.7 travel mm rpm : 1050 2nd speed

travel mm : 6.1...6.3

rpm : 400 3rd speed travel mm : 5.7...6.3

rpm : 250 4th speed

travel mm : 2.5...2.9

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 1100

: 161.0...163.0 Del.quantity

1000 : (158.0...166.0)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED cm3 : 4.00Spread 1000 s: (7.5) 1st version Aneroid pressure h: 1100 Control lever Speed : 600 rpm position degrees: 95...103 Del.quantity cm3/: 161.5...165.5 1000 s: (158.5...168.5) Setting point: Spread cm3 : 6.00 : 600 Speed rpm 1000 s: (9.00) Rack travel in mm: 20.0 Aneroid pressure h: 1100 : 1050 Speed rom Speed rpm : 1000 Del.quantity cm3/ : 157.5...161.5 1000 s: (154.5...164.5) Testing: 1st rack travel in: 13.0 Speed rpm : 1075...1090 Aneroid pressure h: -2nd rack travel in: 4.00 Speed rpm : 500 rpm : 1130...1160 Del.quantity cm3/: 67.0...69.0 Speed 4th rack travel in: 1250 1000 s: (65.0...71.0) rpm : 0.00...1.00Speed LOW IDLE 1 **BREAKAWAY** Control Lever position degrees: 72...80 1st version Setting point w/out bumper spring 1mm rack travel less than Speed rpm : 250 Rack travel in mm: 5.0 full load rack tr: 13.0 Speed rpm : 1075...1090 l'esting: Speed : 100 STARTING FUEL DELIVERY rpm Minimum rack trave: 7.5 : 250 Speed man Rack travel in mm: 4.9...5.1 Speed : 100 rpm Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0) Aneroid/Altitude Compensator Test LOW IDLE 1st version Speed rpm : 250 Setting Rack travel in mm: 4.9...5.1 Speed man : 500 Del.quantity cm3/: 13.0...17.0 Pressure hPa : 1100 1000 s: (10.5...19.5) cm3 : 3.50 Rack travel mm : 14.0...14.1 Spread 1000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #3-7127 1st pressure hPa : -Rack travel in m: 9.2...9.3 2nd pressure hPa : 150 Rack travel in m: 9.5...9.6 3rd pressure hPa : 700 Rack travel in m: 12.8...13.1 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 Speed npm : 800 Del.quantity cm3/: 161.0...163.0 1000 s: (158.0...166.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MAN 7,3 D : 16.02.94 Test sheet Edition : 12.92 Replaces : ISO-4113 Test oil

Combination no. : 0 403 456 115

Injection pump

Pump designation : PES6MW100/321RS1215 EP type number : 0 413 406 205

Governor

Governor design. : RQ250/1200MW84-7 Governer no. : 0 420 082 055

Customer-spec, information Customer : MAN

Engine : D 0826 LUH01

1st version kW : 199.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.5...3.6 Prestroke mm

: (3.3.45...3.65)

Rack travel in mm: 9.0...12.0

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 14.2...14.3

Del.quantity cm3/: 17.0...17.2

100 s: (16.7...17.5)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2rid speed Rack travel in mm: 6.8...7.2 Del.quantity cm3/: 2.8...3.2

100 s: (2.55...3.45) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpin : 1320 travel mm : 9.3...9.7 rpm : 1255 2nd speed : 6.5...6.7 travel mm 3rd speed rpm : 360 : 3.9...4.5 travel mm

4th speed rpm : 250

: 1.6...2.0 travel mm

GUIDE SLEEVE POSITION Control-Lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000 Aneroid pressure h: 1400

Del.quantity : 170.0...172.0 1000 : (167.0...175.0)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED Spread 1st version Control Lever position degrees: 95...103 Setting point: Spread Speed : 600 Rack travel in mm : 20.0 Speed Testing: 1st rack travel in: 13.2 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 Speed rpm : 1340...1370 Speed 4th rack travel in: 1450 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 71...79 Setting point w/out bumper spring : 250 rpm Rack travel in mm: 7.0 Speed Testing: Speed rpm : 100 Minimum rack trave: 8.5 : 250 rpm Rack travel in mm : 6.8...7.2 Speed Aneroid/Altitude Compensator Test 1st version Speed Setting : 500 Speed rpm Pressure hPa : 1400 Rack travel mm : 14.2...14.3 Spread Measurement $1/\min : 500$ Speed Remarks: 1st pressure hPa : -Rack travel in m: 10.0...10.2 2nd pressure hPa : 270 Rack travel in m: 10.5...10.7 3rd pressure hPa : 850 Rack travel in m: 13.4...13.6 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1400 : 1000 Speed rpm Del.quantity cm3/: 170.0...172.0 1000 s: (167.0...175.0)

cm3 : 4.001000 s: (7.5) Aneroid pressure h: 1400 rpm : 600 Del.quantity cm3/: 176.0...180.0 1000 s: (173.0...183.0) cm3 : 6.001000 s: (9.00) Aneroid pressure h: 1400 : 1200 rpm Del.quantity cm3/: 165.0...169.0 1000 s: (162.0...172.0) Aneroid pressure h: rpm : 500 Del.quantity cm3/: 78.0...80.0 1000 s: (76.0...82.0) **BREAKAWAY** 1st version 1mm rack travel less in full load rack tr: . 2 rpm : 1245...1260 STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 60.0...80.0 1000 s: (57.0...83.0) LOW IDLE rpm : 250 Rack travel in mm: 6.8...7.2 Del.quantity cm3/: 28.0...32.0 1000 s: (25.5...34.5) cm3 : 3.50 1000 s: (5.50) : MAN #3-7126

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAN 7,3 0 1 Edition : 16.02.94 Replaces : 03.93 Test oil : ISO-4113 Combination no. : 0 403 456 116 Injection pump Pump designation : PES6MW100/321RS1215 EP type number : 0 413 406 205 Governor Governor design. : RQ250/1200MW84-8 Governer no. : 0 420 082 063 Customer-spec. information Customer : MAN Engine : D 0826 LF 04 1st version kW : 199.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 419 992 198 Inlet press., bar: 1.50 Test nozzle holder assembly : 0 681 343 009 Opening. pressure, bar : 172...175 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETING 1st speed rpm: 1000 Rack travel in mm : 14.05...14.25 Del.quantity cm3/: 16.75...16.95 100 s: (16.45...17.25) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 250.0Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 2.1...2.5 100 s: (1.85...2.75) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1320 : 9.3...9.7 travel mm rpm : 1255 2nd speed : 6.5...6.7 travel mm 3rd speed rpm : 360 : 3.9...4.5 travel mm 4th speed rpm : 250 travel mm : 1.6...2.0 GUIDE SLEEVE POSITION Control-lever position Degree: 108...110 Speed rpm : 600 Rack travel in mm : 19.2...20.8 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1000 Aneroid pressure h: 1200 Del.quantity : 167.5...169.5 1000 : (164.5...172.5) Spread cm3 : 4.00 1000 : (7.50)

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm: 9.0...12.0

: 3.5...3.6

: (3.3.45...3.65)

RATED SPEED Spread cm3 : 4.001000 s: (7.5) 1st version Aneroid pressure h: 1200 Speed rpm : 600 Del.quantity cm3/ : 174.0...178.0 1000 s: (171.0...181.0) Control lever position degrees: 91...99 Setting point: Spread cm3 : 6.00 Speed : 600 rpm 1000 s: (9.00) Rack travel in mm: 20.0 Aneroid pressure h: 1200 : 1200 Speed rom Testing: Del.quantity cm3/: 163.0...167.0 1000 s: (160.0...170.0) 1st rack travel in: 12.6 rpm : 1245...1260 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 77.0...79.0 1000 s: (75.0...81.0) 2nd rack travel in: 4.00 rpm : 1340...1370 Speed 4th rack travel in: 1450 rpm : 0.00...1.00Speed LOW IDLE 1 BREAKAWAY Control lever position degrees: 67...75 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm : 5.6 full load rack tr: 12.6 rpm : 1245...1260 Speed Testing: Speed : 150 rpm STARTING FUEL DELIVERY Minimum rack trave: 7.5 rpm Rack travel in mm: 5.5...5.7 Speed : 100 rpm Del.quantity cm3/: 70.0...90.0 1000 s: (67.0...93.0) Aneroid/Altitude Compensator Test LOW IDLE 1st version Speed rpm Setting Rack travel in mm: 5.5...5.7 : 500 Speed rpm Del.guantity cm3/: 21.0...25.0 Pressure hPa : 1200 1000 s: (18.5...27.5) Rack travel mm : 13.6...13.7 Spread cm3 : 3.501000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #3-7137 1st pressure hPa : -Rack travel in m: 9.5...9.6 2nd pressure hPa : 200 Rack travel in m: 10.0...10.1 3rd pressure hPa : 700 Rack travel in m: 12.3...12.6 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 1000 rpm Del.quantity cm3/: 167.5...169.5 1000 s: (164.5...172.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS
Note remarks

Test sheet : MAN
Edition : 16.02.94
Replaces : 08.92
Test oil : ISO-4113

Combination no. : 0 403 456 119

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number : 0 413 406 190

Governor

Governor design. : RQ250/1200Mw84-10 Governer no. : 0 420 082 065

Customer—spec. information Customer : MAN

Engine : D 0826 LF08/LUH05

1st version kW : 169.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6

: 3.5...3.6 : (3.3.45...3.65)

Rack travel in mm: 9.0...12.0

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 13.2...13.3

Del.quantity cm3/: 14.8...15.0

100 s: (14.5...15.3)

Spread cm3 : 0.4

100 s: (0.7)

2rd speed rpm : 250.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.6...2.0

100 s: (1.35...2.25) Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1300 travel mm : 8.4...8.8 2nd speed rpm : 1260

travel mm : 6.6...6.8

3rd speed rpm : 345 travel mm : 4.0...4.6

4th speed rpm : 250 travel mm : 1.8...2.2

GUIDE SLEEVE POSITION

Control-lever position
Degree: 108...110

Speed rpm: 600

Rack travel in mm : 18.2...19.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 800 Aneroid pressure h: 1000

Del.quantity : 148.0...150.0

1000 : (145.0...153.0)

Spread cm3 : 4.00 1000 : (7.50)

1000 s: (7.5) 1st version Aneroid pressure h: 1000 Control lever Speed rpm : 1200 position degrees: 92...100 Del.quantity cm3/: 143.0...147.0 1000 s: (140.0...150.0) Setting point: Spread cm3 : 6.00 Speed rpm : 600 1000 s: (9.00) Rack travel in mm: 19.0 Aneroid pressure h: 1000 Speed rom Del.quantity cm3/: 147.0...151.0 1000 s: (144.0...154.0) Testing: 1st rack travel in: 11.8 rpm : 1245...1260 Speed Aneroid pressure h: -2nd rack travel in: 4.00 rpm : 500 Speed rpm : 1300...1330 Speed Del.quantity cm3/: 74.0...76.0 4th rack travel in: 1400 1000 s: (72.0...78.0) Speed rpm : 0.00...1.00LOW IDLE 1 BREAKAWAY Control lever position degrees: 69...77 1st version Setting point w/out bumper spring 1mm rack travel less than Speed rpm : 250 Rack travel in mm: 5.5 full load rack tr: 11.8 Speed rpm : 1245...1260 Testing: Speed : 100 rpm STARTING FUEL DELIVERY Minimum rack trave: 7.0 Speed : 250 man Rack travel in mm: 5.4...5.6 Speed rpm : 100 Del.quantity cm3/: 60.0...80.0 Aneroid/Altitude 1000 s: (57.0...83.0) Compensator Test LOW IDLE 1st version Speed rpm : 250 Setting Rack travel in mm: 5.4...5.6 Speed : 500 rom Del.quantity cm3/: 16.0...20.0 hPa : 1000 Pressure 1000 s: (13.5...22.5) Rack travel mm : 13.2...13.3 Spread cm3 : 3.501000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #3-7219 1st pressure hPa : -Rack travel in m: 10.0...10.1 2nd pressure hPa : 150 Rack travel in m: 10.3...10.4 3rd pressure hPa : 550 Rack travel in m: 11.9...12.2 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 800 Del.quantity cm3/ : 148.0...150.0 1000 s: (145.0...153.0)

Spread

cm3 : 4.00

RATED SPEED

Note remarks

Test sheet : MAN 6,2 F Edition : 16.02.94 Replaces : 09.92 Test oil : ISO-4113

Combination no. : 0 403 456 120

Injection pump

Pump designation : PES6MW100/321RS1210

EP type number : 0 413 406 201

Governor

Governor design. : RQ250/1050MW84-11 : 0 420 082 066 Governer no.

Customer-spec. information Customer : MAN

Engine : D 0826 LUH06

: 184.0 1st version kW Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.5...3.6

: (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 14.0...14.1

Del.quantity cm3/: 16.1...16.3

100 s: (15.8...16.6)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 250.0Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.3...1.7

100 s: (1.05...1.95)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1125 1st speed : 7.3...7.7 travel mm rpm : 1050 2nd speed : 6.1...6.3 travel mm 3rd speed rpm : 400

: 5.7...6.3 travel mm 4th speed rpm : 250

travel mm : 2.5...2.9

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 19.2...20.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 1100

Del.quantity : 161.0...163.0

1000 : (158.0...166.0)

: 4.00 Spread cm3 1000 : (7.50)

D₀4

RATED SPEED Spread cm3 : 4.001000 s: (7.5) 1st version Aneroid pressure h: 1100 Control lever : 600 Speed man position degrees: 99...107 Del.quantity cm3/: 161.0...165.0 1000 s: (158.0...168.0) Setting point: Spread cm3 : 6.00Speed : 600 1000 s: (9.00) rpm Rack travel in mm: 20.0 Aneroid pressure h: 1100 Speed rpm : 1050 Del.quantity cm3/ : 155.0...159.0 1000 s: (152.0...162.0) Testing: 1st rack travel in: 13.00 rpm : 1075...1090 Speed Aneroid pressure h: -2nd rack travel in: 4.00 rpm : 500 Speed rpm : 1130...1160 Del.quantity cm3/: 67.0...69.0 Speed 4th rack travel in: 1250 1000 s: (65.0...71.0) rpm : 0.00...1.00Speed LOW IDLE 1 BREAKAWAY Control lever position degrees: 76...84 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm: 5.1 full load rack tr: 13.0 rpm : 1075...1090 Speed Testina: Speed rpm : 100 STARTING FUEL DELIVERY Minimum rack trave: 6.5 : 250 Speed rpm Rack travel in mm : 5.0...5.2 Speed : 100 roni Del.quantity cm3/: 60.0...80.0 Aneroid/Altitude 1000 s: (57.0...83.0) Compensator Test LOW IDLE 1st version Speed rpm : 250 Setting Rack travel in mm: 5.0...5.2 : 500 Speed man Del.quantity cm3/: 13.0...17.0 Pressure hPa : 1100 1000 s: (10.5...19.5) Rack travel mm : 14.0...14.1 Spread cm3 : 3.501000 s: (5.50) Measurement Speed $1/\min : 500$ Remarks: : MAN #3-7220 1st pressure hPa : -Rack travel in m: 9.4...9.5 2nd pressure hPa : 150 Rack travel in m: 9.7...9.8 3rd pressure hPa : 700 Rack travel in m: 13.2...13.5 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1100 : 800 Speed rpm Del.quantity cm3/: 161.0...163.0 1000 s: (158.0...166.0)

Note remarks

Test sheet : MAN 6,2 F Edition : 16.02.94 Replaces : 09.92

Test oil : ISO-4113

Combination no. : 0 403 456 121

Injection pump

Pump designation: PES6MW100/321RS1186

EP type number : 0 413 406 168

Governor

Governor design. : RQ250/1200MW84-12

: 0 420 082 067 Governer no.

Customer-spec. information Customer : MAN

Engine : D 0826 LUH03

: 157.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. *C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening .

: 172...175 pressure, bar

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.5...3.6 : (3.3.45...3.65)

Rack travel in mm: 9.0...12.0

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 12.7...12.8

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

cm3 : 0.4Spread

100 s: (0.7)

2nd speed rpm : 250.0 Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.9...2.3 100 s: (1.65...2.55)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1280 1st speed : 9.5...9.9 travel mm 2nd speed rpm : 1250 travel mm : 7.5...7.7 3rd speed rpm : 350 travel mm : 5.2...5.8

rpm : 250 4th speed

travel mm : 2.2...2.6

GUIDE SLEEVE POSITION Control-lever position

Degree: 108...110 rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 1000

: 133.0...135.0 Del.quantity

1000 : (131.0...137.0)

: 4.00 Spread cm3

1000 : (7.50)

RATED SPEED cm3 : 4.00 Spread 1000 s: (7.5) 1st version Anaroid pressure h: 1000 Control lever Speed rom : 600 Del.quantity cm3/: 131.5...135.5 position degrees: 104...112 1000 s: (128.5...138.5) Setting point: cm3 : 6.00Spread Speed 1000 s: (9.00) rom Rack travel in mm: 15.5 Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity cm3/ : 129.5...133.5 1000 s: (126.5...136.5) Testing: 1st rack travel in: 11.50 rpm : 1245...1260 Aneroid pressure h: -Speed 2nd rack travel in: 4.00 Speed rpm : 500 : 1290...1320 Speed Del.quantity cm3/: 74.0...76.0 rpm 4th rack travel in: 1400 1000 s: (72.0...78.0) rpm : 0.00...1.00Speed LOW IDLE 1 **BREAKAWAY** Control lever position degrees: 70...78 1st version Setting point w/out bumper spring 1mm rack travel less than rpm : 250 Rack travel in mm: 5.6 full load rack tr: 11.5 Speed rpm : 1245...1260 Testina: Speed rpm : 100 STARTING FUEL DELIVERY Minimum rack trave: 7.0 Speed rpm : 250 Rack travel in mm: 5.5...5.7 Speed : 100 CDM Del.quantity cm3/: 70.0...90.0 Aneroid/Altitude 1000 s: (67.0...93.0) Compensator Test LOW IDLE 1st version Speed rpm : 250 Rack travel in mm: 5.5...5.7 Setting Speed : 500 rom Del.quantity cm3/: 19.0...23.0 Pressure hPa : 1000 1000 s: (16.5...25.5) Rack travel mm : 12.8...12.9 cm3 : 3.50Spread 1000 s: (5.50) Measurement 1/min: 500 Speed Remarks: : MAN #3-7221 1st pressure hPa : -Rack travel in m: 10.0...10.1 2nd pressure hPa : 200 Rack travel in m: 10.3...10.4 3rd pressure hPa : 500 Rack travel in m: 12.0...12.3 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 800 Speed rpm Del.quantity cm3/: 133.0...135.0 1000 s: (131.0...137.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MAN Phasing : 0-60-120-180-240-300 : 16.02.94 Edition Replaces : 10.92 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Test oil : ISO-4113 Time to cyl. no. : 1 : 0 403 456 122 Combination no. BASIC SETTING Injection pump Pump designation : PES6MW100/321RS1201 rpm: 800 1st speed : 0 413 406 190 EP type number Governor Rack travel in mm : 12.8...12.9 Governor design.: RQ250/1200MW84-13 : 0 420 082 068 Governer no. Del.quantity cm3/: 14.1...14.3 Customer-spec. information 100 s: (13.8...14.6) Customer : MAN Spread cm3 : 0.4Engine : D 0826 LF08 100 s: (0.7) 1st version kW : 169.0 Rated speed : 2400 2nd speed rpm : 250.0 Rack travel in mm: 5.4...5.6 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.35...2.25) Test oil cm3 : 0.3Spread : 38...42 inlet temp. °C 100 s: (0.5) Overflow valve (B) Setting of injection pump : 1 419 992 198 with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 250 Test nozzle holder : 1.56...1.76 travel mm : 0 681 343 009 assembly 2nd speed : 359 rpm travel mm : 3.6...3.8 Openina 3rd speed : 520 rpm pressure, bar : 172...175 : 6.9...7.1 travel mm : 912 4th speed rpm : 6.98...7.18 travel mm Test lines : 1 680 750 008 : 1257 5th speed rpm : 7.51...7.71 travel mm Outside diameter x Wall thickness GUIDE SLEEVE POSITION x Length mm : 6.00x2.00x600 Control-lever position Degree: 108...110 (A) Injection pump setting values rpm : 600 Insp. values in parentheses Rack travel in mm : 14.7...16.3 Set equal delivery quant. per values _ FULL LOAD DELIV. AT FULL LOAD STOP BEGINNING OF DELIVERY 1st version Test pressure, bar: 30...32 Speed rpm : 800 Aneroid pressure h: 1000 : 3.5...3.6 Del.quantity : 141.0...143.0 1000 : (138.0...146.0) Prestroke mm

: (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Spread cm3 : 4.00 1000 : (7.50)RATED SPEED 1st version Control lever position degrees: 98...106 Setting point: : 600 Speed rom Rack travel in mm: 15.5 Testina: 1st rack travel in: 11.3 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 69...77 Setting point w/out bumper spring rom : 250 Rack travel in mm : 5.5 Testing: Speed rom : 100 Minimum rack trave: 7.0 rpm : 250 Rack travel in mm: 5.4...5.6 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 man hPa : 1000 Pressure : 12.7...12.9 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.3...10.4 2nd pressure hPa : 150 Rack travel in m: 10.6...10.7 3rd pressure hPa : 550 Rack travel in m: 12.2...12.5 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 800

Del.quantity cm3/: 141.0...143.0 1000 s: (138.0...146.0) cm3 : 4.00Spread 1000 s: (7.5) Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 138.0...142.0 1000 s: (135.0...145.0) Spread cm3 : 6.001000 s: (9.00) Aneroid pressure h: 1000 : 1000 L,DU Del.quantity cm3/: 137.0...141.0 1000 s: (134.0...143.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.3 Speed rpm : 1245...1260 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 60.0...80.0 1000 s: (57.0...83.0) LOW IDLE Speed rpm : 250 Rack travel in mm : 5.4...5.6

Remarks:

: MAN #3-7239

Note remarks

Test sheet

: MAN Edition : 16.02.94 Replaces : 12.92

: ISO-4113 Test oil

Combination no. : 0 403 456 123

Injection pump

Pump designation : PES6Mw100/321RS1201

EP type number : 0 413 406 190

Governor

Governor design. : RQ250/1200MW84-14

: 0 420 082 069 Governer no.

Customer-spec. information Customer : MAN

Engine : D 0826 LF02/LF06

1st version kW : 169.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.5...3.6 Prestroke mm

: (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1-5- 3- 6- 2- 4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 12.8...12.9

Del.quantity cm3/: 14.1...14.3

100 s: (13.8...14.6)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.0 2nd speed Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 1.6...2.0 100 s: (1.35...2.25)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.56...1.76

rpm : 359 2nd speed

travel mm : 3.6...3.8

rpm : 520 3rd speed

: 6.9...7.1 travel mm 4th speed : 912 rpm

: 6.98...7.18 travel mm

: 1257 5th speed rom

: 7.51...7.71 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 14.7...16.3

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 1000

Del.quantity : 741.0...146.0)

010

Spread cm3 : 4.00 Del.quantity cm3/: 141.0...143.0 1000 : (7.50) 1000 s: (138.0...146.0) Spread cm3 : 4.00RATED SPEED 1000 s: (7.5) Aneroid pressure h: 1000 1st version Speed L DW : 600 Del.quantity cm3/: 138.0...142.0 1000 s: (135.0...145.0) Control lever position degrees: 101...109 Spread cm3 : 6.09 Setting point: 1000 s: (9.00) Speed : 600 Aneroid pressure h: 1000 rpm Rack travel in mm: 15.5 Speed : 1000 rom Del.quantity cm3/: 137.0...141.0 1000 s: (134.0...143.0) Testina: 1st rack travel in: 11.3 Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0) rpm : 1245...1260 Speed 2nd rack travel in: 4.00 Speed rpm : 1300...1330 4th rack travel in: 1400 Speed rpm : 0.00...1.00**BREAKAWAY** LOW IDLE 1 Control lever 1st version position degrees: 71...79 1mm rack travel less than Setting point w/out bumper spring rpm : 250 Speed full load rack tr: 11.3 Rack travel in mm: 5.5 rpm : 1245...1260 Speed Testing: STARTING FUEL DELIVERY Speed rpm : 100 Minimum rack trave: 7.0 rpm : 250 Speed : 100 rpm Rack travel in mm: 5.4...5.6 Del.quantity cm3/: 60.0...80.0 1000 s: (57.0...83.0) Aneroid/Altitude Compensator Test LOW IDLE rpm : 250 Speed 1st version Rack travel in mm: 5.4...5.6 Setting Del.quantity cm3/: 16.0...20.0 : 500 Speed 1000 s: (13.5...22.5) COM hPa : 1000 cm3 : 3.50 Pressure Spread : 12.7...12.9 Rack travel mm 1000 s: (5.50) Measurement Remarks: 1/min: 500 Speed : MAN #3-7240 1st pressure hPa : -Rack travel in m: 10.3...10.4 2nd pressure hPa : 155 Rack travel in m: 10.6...10.7 3rd pressure hPa : 550 Rack travel in m: 12.2...12.5 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed : 800 rpm

Note remarks

Test sheet

: MAN

Edition

: 14.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 456 126

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number

: 0 413 406 190

Governor

Governor design. : RQV250/1200MW83-4

Governer no.

: 0 420 083 307

Customer

Customer-spec. information

: MAN

Engine

: D 0826 LFL06

1st version kW

Rated speed

: 162.0 : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. *C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 15.00...0.00

012

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed

rpm : 800

Rack travel in mm : 12.65...12.75

Del.quantity cm3/: 13.9...14.1

100 s: (13.6...14.4)

Spread

cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.6...2.0 100 s: (1.35...2.25)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

travel mm : 0.88...1.38

2nd speed : 333 rpm

travel mm : 1.78...2.28

3rd speed rpm : 440

travel mm : 2.87...3.37

4th speed : 807 rpm

travel mm : 5.58...6.08

: 1250 5th speed rpm

travel mm : 10.19...10.69

GUIDE SLEEVE POSITION Control-lever position

Degree: 125...129

rpm : 1300

Rack travel in mm : 11.0...12.0

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rom : 800

Aneroid pressure h: 1000

Del.quantity : 159.0...144.0)

Spread cm3 : 4.00 1000 : (7.00)RATED SPEED 1st version Control lever position degrees: 118...126 Testing: 1st rack travel in: 11.20 Speed rpm : 1245...1260 2nd rack travel in: 4.00 rpm : 1320...1350 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 73...81 Setting point w/out bumper spring : 250 Speed man Rack travel in mm: 5.7 Testing: Speed rpm : 150 Minimum rack trave: 7.00 rpm : 250 Speed Rack travel in mm : 5.60...5.80 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 1000 Pressure : 12.65...12.75 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.95...10.05 2nd pressure hPa : 155 Rack travel in m: 10.30...10.40 3rd pressure hPa : 550 Rack travel in m: 12.00...12.30 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

1000 s: (136.0...144.0)

cm3 : 4.00 1000 s: (7.5)

Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity cm3/ : 134.0...138.0 1000 s: (131.0...141.0) Spread cm3 : 6.00 1000 s: (9.00) Aneroid pressure h: 1000 : 600 rpm Del.quantity cm3/: 135.0...139.0 1000 s: (132.0...142.0) Aneroid pressure h: -Speed rpm: 500 Deliquantity m3/: 74.0...76.0 1000 s: (72.0...78.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.20 rpm : 1245...1260 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 60.0...80.0 1000 s: (57.0...83.0) LOW IDLE Speed rpm : 250
Rack travel in mm : 5.60...5.80
Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: : MAN #3-7332

Spread

Note remarks

Test sheet : MAN

Edition : 16.02.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 456 127

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number : 0 413 406 190

Governor

Governor design. : RQ250/1200MW84-15

: 0 420 082 072 Governer no.

Customer-spec. information

Customer : MAN

Engine : D 0826 LFL06

1st version kW : 162.0

Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.5...3.6 : (3.3.45...3.65)

Rack travel in mm : 9.0...12.0

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 800

Rack travel in mm : 12.65...12.75

Del.quantity cm3/: 13.9...14.1

100 s: (13.6...14.4)

Spread cm3 : 0.4

100 s: (0.7)

rpm : 250.02nd speed Rack travel in mm: 5.6...5.8

Del.quantity cm3/: 1.6...2.0

100 s: (1.35...2.25) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

travel mm : 1.43...1.63

2nd speed rpm : 364

: 3.58...3.78 travel mm 3rd speed : 530

rpm travel mm : 6.9...7.1

4th speed : 914 rpm

: 6.98...7.18 travel mm 5th speed

rpm : 1262

: 7.51...7.71 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: 108...110

rpm : 600

Rack travel in mm : 14.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1000

Del.quantity : 139.0...144.0)

Del.quantity cm3/: 139.0...141.0 1000 s: (136.0...144.0) cm3 : 4.00Spread 1000 : (7.50) Spread RATED SPEED 1st version Control lever position degrees: 98...106 Spread Setting point: Speed : 600 nom Rack travel in mm: 16.5 Testing: 1st rack travel in: 11.2 Aneroid pressure h: rpm : 1245...1260 Speed Speed 2nd rack travel in: 4.00 rpm : 1320...1350 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00 BREAKAWAY LOW IDLE 1 Control lever 1st version position degrees: 69...77 Setting point w/out bumper spring rpm : 250 Speed Rack travel in mm: 5.7 Speed Testina: STARTING FUEL DELIVERY Speed : 100 rpm Minimum rack trave: 7.0 rpm : 250 Speed Rack travel in mm: 5.6...5.8 Aneroid/Altitude Compensator Test LOW IDLE Speed rpm 1st version Setting Speed rom : 500 Pressure hPa : 1000 Spread Rack travel mm : 12.65...12.75 Measurement Remarks: 1/min : 500 Speed 1st pressure hPa : -Rack travel in m: 9.95...10.05 2nd pressure hPa : 155 Rack travel in m: 10.3...10.4 3rd pressure hPa : 550 Rack travel in m: 12.0...12.3 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 800

cm3 : 4.001000 s: (7.5) Aneroid pressure h: 1000 Speed rpm : 1200 Del.quantity cm3/ : 134.0...138.0 1000 s: (131.G...141.G) cm3 : 6.001000 s: (9.00) Aneroid pressure h: 1000 Speed rpm : 600 Cel.quantity cm3/: 135.0...142.0 1000 s: (132.0...142.0) rpm_ : 500 Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0) imm rack travel less than full load rack tr: 11.2 rpm : 1245...1260 rpm : 100 Del.quantity cm3/: 60.0...80.0 1000 s: (57.0...83.0) : 250 Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.501000 s: (5.50) : MAN #3-7331

Note remarks

Test sheet : CDC Edition : 16.02.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 466 133

Injection pump

Pump designation : PES6Mw100/120RS1137

EP type number : 0 413 406 131

Governor

Governor design. : RSV450...1100MW2A319

-20

: 0 420 085 212 Governer no.

Customer-spec. information Customer : CDC

Engine : 6CTA-8.3L

1st version kW : 188.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.5...3.6 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 14.3...14.4

Del.guantity cm3/: 14.9...15.1

100 s: (14.6...15.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 425.0 Rack travel in mm : 7.2...7.4 Del.quantity cm3/: 1.9...2.3

100 s: (1.65...2.55)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting \bar{x} : 2.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 149.0...151.0 Del.quantity

1000 : (146.0...154.0)

cm3 : 4.00 Spread 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 92...100

Testina:

1st rack travel in: 13.30

rpm : 1160...1170 Speed

2nd rack travel in: 4.00

rpm : 1235...1265 Speed

4th rack travel in: 1350

Speed rom : 0.30...1.70LOW IDLE 1 Control Lever position degrees: 68...76 Setting point w/out bumper spring : 425 man Rack travel in mm: 7.3 Testing: Speed rpm : 100 Minimum rack trave: 19.0 Speed rpm: 425 Rack travel in mm: 7.2...7.4 SET IDLE AUXILIARY SPRING Speed rpm : 425 Rack travel in mm : 7.7...7.9 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 1100 rpm Del.quantity cm3/: 149.0...151.0 1000 s: (146.0...154.0) cm3 : 4.00 Spread 1000 s: (7.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.3 rpm : 1160...1170 Speed STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 125.0...145.0 1000 s: (122.0...148.0) LOW IDLE rpm : 425

Speed Rack travel in mm: 7.2...7.4 Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5)

Spread cm3 : 3.501000 s: (5.50)

Remarks:

: CDC #3921149

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CDC Edition : 14.02.94 Replaces Test oil : ISO-4113 Combination no. : 0 403 466 139 Injection pump Pump designation : PES6MW100/12URS1748 EP type number : 0 413 406 143 Governor Governor design. : RSV400...750MW7A319-: 0 420 085 217 Governer no. Customer-spec. information Customer : CDC Engine : 6CTA 1st version kW : 180.0 Rated speed : 1500 TEST BENCH REQUIREMENTS Test oil inlet temp. *C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening | pressure, bar : 207...210 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values _

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance $+ - \cdot : 0.50 (0.75)$ BASIC SETTING 1st speed rpm: 750 Rack travel in mm: 13.00...13.10 Del.quantity cm3/: 17.95...18.15 100 s: (17.65...13.45) Spread cm3 : 0.4100 s: (0.7) 2nd speed rpm : 400.0 Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 1.6...1.8 100 s: (1.35...2.25) Spread cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 Speed 003: mgn Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 750 : 179.5...181.5 Speed Del.quantity 1000 : (176.5...184.5) cm3 : 4.00 1000 : (7.50) Spread RATED SPEED 1st version Control lever position degrees: 90...98 Testing: 1st rack travel in: 12.0 rpm : 790...800 Speed 2nd rack travel in: 4.00

rpm : 815...845

Speed

4th rack travel in: 1000

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 3.60...3.70

: (3.55...3.75)

rpm : 0.30...1.30Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 6.10 Testing: Speed rpm : 100 Minimum rack trave: 19.0 Speed rpm : 400 Rack travel in mm : 6.00...6.20 SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00 START CUT-OUT Speed 1/min: 100 (80) FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750
Del.quantity cm3/ : 179.5...181.5 1000 s: (176.5...184.5) Spread cm3 : 4.001000 s: (7.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.0 rpm : 790...800 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 125.0...145.0 1000 s: (122.0...148.0) LOW IDLE

Speed rpm : 400 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: CDC #3921083

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Firing order Test sheet : CDC Edition : 14.02.94 Reclaces Test oil : ISO-4113 Phasing Combination no. : 0 403 466 144 Tolerance + - ° Injection pump BASIC SETTING Pump designation : PES6MW100/120RS1137-1st speed rpm: 1100 EP type number : 0 413 406 157 Governor Rack travel in mm : 13.30...13.40 Governor design. : RSV450...1100MW2A319 -29 Del.quantity cm3/: 12.80...13.00 : 0 420 085 226 Governer no. 100 s: (12.50...13.30) Customer-spec. information Customer : CDC Spread cm3 : 0.4Engine : 6CTA 100 s: (0.7) 1st version kW : 171.0 rpm : 450.02nd speed Rack travel in mm : 6.5...6.7 Del.quantity cm3/ : 1.8...2.2 Rated speed : 2200 TEST BENCH REQUIREMENTS 100 s: (1.55...2.45) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 047 Degree: -3 rpm : 800 Speed Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder Governor spring pre-tension : 1 688 901 101 assembly Click setting x : 4.00 Opening. FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 1st version rpm : 1100 Speed Test lines : 1 680 750 014 Del.quantity Outside diameter Spread x Wall thickness x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant.

: 128.0...130.0 1000 : (125.0...133.0) cm3 : 4.00 1000 : (7.50) Control lever position degrees: 101...109 Testing: 1st rack travel in: 12.30 rpm : 1150...1170 Speed 2nd rack travel in: 4.00

: 3.60...3.70 : (3.55...3.75)

: 0.50 (0.75)

: 1-5-3-6-2-4

: 0-60-120-180-240-300

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Speed rpm : 1260...1270 4th rack travel in: 1350

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 80...88 Setting point w/out bumper spring

rpm : 450 Rack travel in mm: 6.60

Testing:

Speed rpm : 100 Minimum rack trave: 19.0 rpm : 450 Speed

Rack travel in mm : 6.50...6.70

SET IDLE AUXILIARY SPRING Rack travel in mm : 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100 Del.quantity cm3/ : 128.0...130.0 1,000 s: (125.0...133.0)

Spread cm3 : 4.00 1000 s: (7.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30

rpm : 1150...1170 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 120.0...140.0 1000 s: (117.0...143.0)

LOW IDLE

rpm : 450 Speed

Rack travel in mm : 6.50...6.70 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: CDC #3926218

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.50...3.60 : (3.45...3.65) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : CDC Edition : 14.02.94 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 466 145 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/120RS1137-1st speed rpm: 1100 EP type number : 0 413 406 180 Governor Rack travel in mm : 14.40...14.50 Governor design. : RSV550...1100MW2A319 Del.quantity cm3/: 14.5...14.7 Governer no. : 0 420 085 225 100 s: (14.2...15.0) Customer-spec. information Customer : CDC Spread cm3 : 0.4 Engine : 6CTA 100 s: (0.7) 1st version kW : 191.0 2nd speed rpm : 550.0 : 2200 Rated speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 1.75...2.15 100 s: (1.5...2.4) TEST BENCH REQUIREMENTS cm3 : 0.3Spread Test oil 100 s: (0.5) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 047 Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 Test nozzle holder Governor spring pre-tension : 1 688 901 101 assembly Click setting x : 4.00Opening. FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 1st version Speed : 1100 rpm Test lines : 1 680 750 014 Del.quantity : 145.0...147.0 1000 : (142.0...150.0) Outside diameter cm3 Spread : 4.00 x Wall thickness 1000 : (7.50)x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values Insp. values in parentheses 1st version Set equal delivery quant. Control lever per values _ position degrees: 93...101 BEGINNING OF DELIVERY Testina: Test pressure, bar: 30...32 1st rack travel in: 13.40 rpm : 1160...1170 Speed

2nd rack travel in: 4.00

Speed rpm : 1230...1240 4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 71...79

Setting point w/out bumper spring

rpm : 550 Speed Rack travel in mm: 6.50

Testing:

rpm : 100 Speed Minimum rack trave: 19.0 Speed rpm : 550

Rack travel in mm : 6.40...6.60

SET IDLE AUXILIARY SPRING Rack travel in mm: 4.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0)

cm3 : 4.00 Spread 1000 s: (7.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.40

rpm : 1160...1170 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...140.0 1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 550 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 17.5...21.5 1000 s: (15.0...24.0)

cm3 : 3.50

1000 s: (5.50)

Remarks:

Spread

: CDC #3925549

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : CDC Edition : 14.02.94 Replaces : ISO-4113 Test oil Phasina : 0-60-120-180-240-300 Combination no. : 0 403 466 146 Tolerance + - ° : 0.50 (0.75) Injection pump BASIC SETTING Pump designation : PES6MW100/120RS1137-1st speed rpm: 1100 : 0 413 406 157 EP type number Governor Rack travel in mm : 13.30...13.40 : RSV500...1100Mw2A335 Governor design. Del.quantity cm3/: 13.15...13.35 Governer no. : 0 420 085 235 100 s: (12.85...13.65) Customer-spec. information : CDC Customer cm3 : 0.4Spread : 6CTA Engine 100 s: (0.7) : 172.0 1st version kW 2nd speed rpm : 500 Rated speed : 2200 Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 1.9...2.3 TEST BENCH REQUIREMENTS 100 s: (1.65...2.55) Spread cm3 : 0.3Test oil 100 s: (0.5) inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Overflow valve Control-lever position : 1 417 413 047 Degree: -3 rpm : 800 Speed Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder Governor spring pre-tension : 1 688 901 101 assembly Click setting x : 4.00Opening FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar : 207...210 1st version Speed rpm : 1100 Test lines : 1 680 750 014 Aneroid pressure h: 1200 : 131.5...133.5 Del.quantity 1000 : (128.5...136.5) Outside diameter x Wall thickness Spread : 4.00 cm3 : 6.00x2.00x600 x Length mm 1000 : (7.50)(A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version per values ___ Control lever position degrees: 98...106 BEGINNING OF DELIVERY Test pressure, bar: 30...32 Testina: 1st rack travel in: 12.30

rpm : 1150...1170

Speed

2nd rack travel in: 4.00

Speed rpm : 1260...1270 4th rack travel in: 1350

Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever

position degrees: 77...85

Setting point w/out bumper spring

rom : 500 Rack travel in mm: 6.40

Testing:

Speed rpm : 100

Minimum rack trave: 19.0 rpm : 500 Speed

Rack travel in mm : 6.30...6.50

SET IDLE AUXILIARY SPRING

Rack travel in mm : 4.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 mcm.

Pressure

hPa : 1200 mm : 14.40...14.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.35...11.55

2nd pressure hPa : 275

Rack travel in m: 12.10...12.20

3rd pressure hPa : 425

Rack travel in m: 13.10...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 1100 Speed

Del.quantity cm3/: 131.5...133.5

1000 s: (128.5...136.5)

Spread cm3 : 4.00

1000 s: (7.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.30

rpm : 1160...1170 Speed

D25

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 120.0...140.0

1000 s: (117.0...143.0)

LOW IDLE

Speed rpm : 500 Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 19.0...23.0

1000 s: (16.5...25.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: CDC #3926219

Note remarks

Test sheet

: MB

Edition

: 10.02.94

Replaces

Test oil

: TSO-4113

Combination no. : 0 403 476 0378

Injection pump

Pump designation : PES6MW100/720RS1130

EP type number

: 0 413 406 122

Governor

Governor design. : RSV350...1300MW0A318

Governer no.

: 0 420 085 052

Customer-spec. information Customer

: MB-NFZ

Engine

: OM 366 A

1st version kW

: 112.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

D26

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1200

Rack travel in mm : 10.10...10.30

Del.quantity cm3/: 6.85...7.15

100 s: (6.7...7.3)

Spread

cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm: 8.0...8.2

Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

Spread

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200 : 68.5...71.5

Del.quantity

1000 : (67.0...74.0)

Spread

cm3 1000 : (6.00)

: 3.50

RATED SPEED

1st version

Setting point:

Speed rom

Rack travel in mm: 0.65

Testing:

Speed

Speed

1st rack travel in: 9.20

rpm : 1220...1230

2nd rack travel in: 4.00

Speed

rpm : 1280...1310

4th rack travel in: 1325

rpm : 0.30...1.70

LOW IDLE 1 Control lever position degrees: 75...83 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 8.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 8.00...8.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 2.00 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.10...10.30 rpm : 800 2nd speed Rack travel in m: 11.60...11.80 rpm : 750 3rd speed Rack trave! in m: 11.60...11.80 rpm : 950 4th speed Rack travel in m: 11.50...11.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1200 Del.quantity cm3/: 68.5...71.5 1000 s: (67.0...73.0) cm3 : 3.50Spread 1000 s: (6.0) : 800 Speed rom Del.quantity cm3/: 72.0...76.0 1000 s: (70.0...78.0) cm3 : 5.00Spread 1000 s: (7.00) Speed rpm : 750
Del.quantity cm3/ : 68.5...73.5
1000 s: (66.0...76.0) : 900 Speed COM Del.quantity cm3/: 75.5...80.5 1000 s: (73.0...83.0) BREAKAWAY 1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1220...1230 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 8.06...8.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

D27

Note remarks

Test sheet : MB

Edition : 10.02.94

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 0376

Injection pump

Pump designation : PES6MW100/720RS1130

EP type number : 0 413 406 122

Governor

Governor design. : RSV350...1300Mw0A318

Governer no. : 0 420 085 052

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 112.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm: 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-50-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 6.95...7.25

100 s: (6.8...7.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 8.0...8.2

Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5) Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

: 69.5...72.5 Del.quantity

1000 : (68.0...74.0) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed

Rack travel in mm: 0.65

Testing:

1st rack travel in: 9.75

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1170...1200 Speed

4th rack travel in: 1225

Speed rpm : 0.30...1.70

D28

LOW IDLE 1 Control Lever position degrees: 75...83 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 8.1 Testing: Speed : 100 rpm Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 0.00...8.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 2.00 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 10.70...10.80 2nd speed rpm : 750 Rack travel in m: 10.70...10.80 3rd speed rpm : 900 Rack travel in m: 10.65...10.85 4th speed rpm : 500 Rack travel in m: 10.65...10.85 FUEL DELIVERY CHARACTERISTICS 1st version : 1100 Speed rom Del.quantity cm3/ : 69.5...72.5 1000 s: (68.0...74.0) Spread cm3 : 3.501000 s: (6.0) Speed rpm : 750 Del.quantity cm3/: 57.0...61.0 1000 s: (55.0...63.0) Spread cm3 : 5.001000 s: (7.00) : 900 Speed rpm Del.quantity cm3/: 65.0...70.0 1000 s: (62.5...72.5) : 500 Speed rpm Del.quantity cm3/: 38.0...42.5 1000 s: (35.5...45.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.75

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 8.00...8.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet Phasina : 0-60-120-180-240-300 Edition : 10.02.94 Replaces Tolerance + - ° : 0.50 (0.75) Test oil : ISO-4113 BASIC SETTING Combination no. : 0 403 476 0370 1st speed rpm: 1150 Injection pump Pump designation : PES6MW100/720RS1/30 Rack travel in mm : 11.45...11.55 EP type number : 0 413 406 122 Governor Del.quantity cm3/: 8.15...8.45 Governor design. : RSV350...1300MWOA318 : 0 420 085 052 Governer no. 100 s: (8.0...8.6) Customer-spec. information Spread cm3 : 0.3Customer : MB-NFZ 100 s: (0.6) Engine : OM 366 A 2nd speed rpm : 350.01st version kW : 112.0 Rack travel in mm: 8.0...8.2 Del.quantity cm3/: 0.9...1.3 Rated speed : 2600 100 s: (0.7...1.5) TEST BENCH REQUIREMENTS Spread cm3 : 0.3100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 rpm : 800 Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder assembly : 0 681 343 009 1st version Speed rpm : 1150 **Opening** Del.quantity : 81.5...84.5 : 172...175 1000 : (80.0...86.0) pressure, bar : 3.50 Spread cm3 1000 : (6.00) Test Lines : 1 680 750 015 RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00x1.50x600 Setting point: (A) Injection pump setting values Speed rom Insp. values in parentheses Rack travel in mm: 0.65 Set equal delivery quant. per values Testing: 1st rack travel in: 10.50 BEGINNING OF DELIVERY rpm : 1190...1200 Speed Test pressure, bar: 30...32 2nd rack travel in: 4.00 rpm : 1245...1275 Speed Prestroke mm : 3.70...3.80 4th rack travel in: 1350 : (3.65...3.85) Speed : 0.30...1.70 rom Rack travel in mm : 9.00...12.00

LOW IDLE 1 Control Lever position degrees: 75...83 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 8.1 Testina: rpm Speed : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 8.00...8.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 2.00 Torque control curve - 1st version rpm : 1150 1st speed Rack travel in m: 11.45...11.55 : 750 2nd speed rpm Rack travel in m: 11.95...12.05 3rd speed rpm : 950 Rack travel in m: 11.65...11.85 4th speed rpm : 500 Rack travel in m: 12.00...12.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 1150 rpm Del.quantity cm3/: 81.5...84.5 1000 s: (80.0...86.0) Spread cm3 : 3.50 1000 s: (6.0) : 750 Speed rom Del.quantity cm3/: 75.5...79.5 1000 s: (73.5...81.5) Spread cm3 : 5.00 1000 s: (7.00) : 950 Speed rom Del.quantity cm3/: 79.0...84.0 1000 s: (76.5...86.5) : 500 Speed rpm Del.quantity cm3/: 65.5...70.5 1000 s: (63.0...73.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50 Speed rpm : 1190...1200

opeed (piii . 1190...12

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 8.00...8.20 Del.quantity cm3/ : 9.0...13.0 1000 s: (7.0...15.0)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 H 1 : 14.02.94 Test sheet Edition Replaces : 05.91 Test oil : ISO-4113 Combination no. : 0 403 476 080A Injection pump Pump designation : PES6MW100/720RS1191 EP type number : 0 413 406 179 Governor Governor design. : RSV350...1300MwOA329 Coverner no. : 0 420 085 136

Customer—spec. information Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 165.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

 \times Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 12.20...12.40

100 s: (12.0...12.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.0...6.2 Del.quantity cm3/ : 0.9...1.3 100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1150 Aneroid pressure h: 1000

Del.quantity : 122.0...124.0 1000 : (120.0...126.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 105...113

Setting point:

Speed rpm: 800 Rack travel in mm: 0.65

Testing:

1st rack travel in: 13.85

Speed rpm : 1180...1190

2nd rack travel in: 4.00

Speed rpm : 1270...1310 4th rack travel in: 1350 Speed rpm : 0.30...1.70

LOW IDLE 1 Control lever

position degrees: 75...83 Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm Pressure hPa : 1000

Rack travel mm : 14.80...14.90

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 12.10...12.30

2nd pressure hPa : 350

Rack travel in m: 12.90...13.10

3rd pressure hPa : 500

Rack travel in m: 13.90...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 : 1150 Speed rpm

Del.quantity cm3/: 122.0...124.0 1000 s: (120.0...126.0)

cm3 : 3.50

Spread 1000 s: (6.0)

Aneroid pressure h: 1000 Speed rpm : 600

Del.quantity cm3/: 118.5...121.5

1000 s: (116.0...124.0) cm3 : 5.00

1000 s: (7.00)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/: 69.0...71.0

1000 s: (67.0...73.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.85

rpm : 1180...1190 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5)

cm3 : 3.50Spread

1000 s: (5.00)

Remarks:

* Read off speed set under 1. Add 80...88 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Spread

Note remarks

Test sheet

Edition

: MAN

Replaces

: 14.02.94

Test oil

: ISO-4113

Combination no. : 0 403 476 134

Injection pump

Pump designation : PES6MW100/320RS1236

EP type number

: 0 413 406 231

Governor

Governor design. : RSV325...750MW1A802-

Governer no.

: 0 420 085 237

Customer—spec. information Customer

: MAN

Engine

: D 0826 LXE20

1st version kW

: 151.0

Rated speed

: 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 1 688 901 101

Opening

pressure, bar

: 207...210

Orifice plate

diameter mm

: 0,6

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 14.0...16.0

Firing order

: 1-5-3-6-2-4

Phasing

Spread

Spread

: 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 13.60...13.80

Del.quantity cm3/: 19.1...19.3

100 s: (18.8...19.6)

cm3 : 0.4

100 s: (0.7)

2nd speed

rpm : 325.0

Rack travel in mm : 6.60...7.40

Del.quantity cm3/: 6.3...6.7

100 s: (6.15...6.95)

cm3 : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 700

Aneroid pressure h: -

Del.quantity

: 191.0...193.0

cm3

1000 : (188.0...196.0)

Spread

: 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 84...92

Setting point:

Speed

rpm

: 800

Rack travel in mm: 0,65 Remarks: Testing: : MAN #3-7231 1st rack travel in: 12.70 rom : 750...755 Speed 2nd rack travel in: 4.00 rpm : 780...788 Speed 4th rack travel in: 950 rpm : 0.30...1.70 Speed LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring Speed rpm : 325 Rack travel in mm: 7.0 Speed : 325 rpm Rack travel in mm : 6.60...7.40
Rack travel in mm : 2.00 : 310...370 Speed rpm FUEL DELIVERY CHARACTERISTICS 1st version : 700 Speed rpm Del.quantity cm3/: 191.0...193.0 1000 s: (188.0...196.0) cm3 : 4.00 Spread 1000 s: (7.5) Speed rpm : 784
Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) Spread cm3 : 3.501000 s: (6.00) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.70 rpm : 750...755 Speed STARTING FUEL DELIVERY LOW IDLE Speed : 325 ממט Rack travel in mm : 6.60...7.40 Del.quantity cm3/: 63.0...67.0 1000 s: (61.5...69.5) cm3 : 6.00 Spread 1000 s: (9.00)

Note remarks

Test sheet

: MAN

Edition

: 14.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 486 105

Injection pump

Pump designation : PES6MW100/321RS1231

EP type number

: 0 413 406 225

Governor

Governor design.

: RSV300...1100Mw0A343

Governer no.

: 0 420 085 209

Customer-spec. information

Customer

: MAN

Engine

: D0826LE 522

1st version kW

: 154.0

Rated speed

: 2200

TEST BENCH REQUIREMENTS

Test vil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 14.2...14.4

100 s: (13.9...14.7)

Spread

Spread

Speed

cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100

Aneroid pressure h: 1000

Del.quantity : 142.0...144.0 1000 : (139.0...147.0)

Spread

: 4.00 cm3

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 100...108

Setting point:

Speed

: 800 rpm

Rack travel in mm: 0.65

Testing:

1st rack travel in: 11.00 Speed rpm : 1150...1160 2nd rack travel in: 4.00 cm3 : 4.00Spread 1000 s: (7.5) Aneroid pressure h: 1000 Speed rpm : 1230...1260 4th rack travel in: 1350 Speed rom : 900 Del.quantity cm3/: 144.0...148.0 Speed rom : 0.30...1.701000 s: (141.0...151.0) Spread cm3 : 6.00LOW IDLE 1 1000 s: (9.00) Control lever Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/ : 148.0...152.0 1000 s: (145.0...155.0) position degrees: 72...80 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 5.1 Aneroid pressure h: rpm : 500 Speed Testina: Del.quantity cm3/: 75.0...77.0 Speed rpm : 100 1000 s: (73.0...79.0) Minimum rack trave: 19,00 rpm : 300 Speed Rack travel in mm : 4.90...5.10 **BREAKAWAY** SET IDLE AUXILIARY SPRING 1st version Rack travel in mm : 2.00 1mm rack travel less than TORQUE CONTROL full load rack tr: 11.00 Torque control curve - 1st version Speed rpm . 1150...1160 1st speed rpm : 1100 Rack travel in m: 12.00...12.10 STARTING FUEL DELIVERY 2nd speed rpm : 900 Rack travel in m: 12.30...12.40 3rd speed rpm : 600 Speed rpm : 100 Rack travel in m: 12.30...12.50 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Aneroid/Altitude Compensator Test LOW IDLE Speed rpm : 300 Rack travel in mm : 4.90...5.10 1st version Del.quantity cm3/: 9.0...13.0 Setting Speed : 500 1000 s: (6.5...15.5) rom hPa : 1000 Pressure cm3 : 3.50 Spread Rack travel mm : 12.30...12.50 1000 s: (5.50) Measurement Remarks: $1/\min : 500$ Speed : MAN #3-7263 1st pressure hPa : -Rack travel in m: 9.40...9.50 2nd pressure hPa : 150 Rack travel in m: 9.70...9.80 3rd pressure hPa : 600 Rack travel in m: 11.60...11.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 1100 Del.quantity cm3/ : 142.0...144.0 1000 s: (139.0...146.0)

Note remarks

Test sheet : MAN

Edition : 14.02.94

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 486 106

Injection pump

Pump designation : PES6MW100/321RS1232

EP type number : 0 413 406 226

Governor

Governor design. : RSV300...1150MW0A343

-2

Governer no. : 0 420 085 210

Customer—spec. information Customer : MAN

Engine : D0826LE 523

1st version kW : 154.0 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 18...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter × Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1150

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0 Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 1.3...1.7

100 s: (1.15...1.95)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150 Aneroid pressure h: 1200

Del.quantity : 159.0...161.0

1000 : (156.0...164.0)

Spread cm3 : 4.00 1000 : (7.50)

RATED SPEED

1st version Control lever

position degrees: 100...108

Setting point:

Speed rpm: 800 Rack travel in mm: 0.65

Testing:

1st rack travel in: 12.00 rpm : 1200...1210 Speed 2nd rack travel in: 4.00 rpm : 1290...1320 Speed 4th rack travel in: 1400 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 73...81 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm: 5.4...5.6 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1150 Rack travel in m: 13.0...13.10 2nd speed rpm : 925 Rack travel in m: 13.30...13.50 3rd speed rpm : 600 Rack travel in m: 13.30...13.50 4th speed rpm : 500 Rack travel in m: 9.40...9.50 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 ron hPa : 1200 Pressure : 13.00...13.10 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 9.40...9.50 2nd pressure hPa : 150 Rack travel in m: 9.70...9.80 3rd pressure hPa : 750 Rack travel in m: 12.20...12.50 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 1150

Del.quantity cm3/: 159.0...161.0 1000 s: (156.0...164.0) Spread cm3 : 4.001000 s: (7.5) Aneroid pressure h: 1200 Speed rpm : 925 Del.quantity cm3/: 160.0...164.0 1000 s: (157.0...167.0) Spread cm3 : 6.00 1000 s: (9.00) Aneroid pressure h: 1200 Speed : 600 rpm Del.quantity cm3/: 158.0...162.0 1000 s: (155.0...165.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 75.0...77.0 1000 s: (73.0...79.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.00 rpm : 1200...1210 Speed STARTING FUEL DELIVERY Speed : 100 rom Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 13.0...17.0 1000 s: (11.5...19.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: MAN #3-7262

Note remarks

Test sheet

: MAN

Edition

: 14.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 486 107

Injection pump

Pump designation : PES6MW100/321RS1208

EP type number

: 0 413 406 199

Governor

Governor design. : RSV350...900MW1A360

Governer no.

: 0 420 085 238

Customer-spec. information Customer

: MAN

Engine

: D0826LE 101

1st version kW

: 140.0

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

intet temp. °C

: 18...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 908

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Phasing

Firing order

: 0-60-120-180-240-300

: 1-5-3-6-2-4

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed

rpm: 870

Rack travel in mm : 13.65...13.75

Del.quantity cm3/ : 13.7...13.9

100 s: (13.4...14.2)

Spread

Spread

cm3 : 0.4

100 s: (0.7)

rpm : 350.0

2nd speed

Rack travel in mm: 4.4...4.6 Del.quantity cm3/ : 1.1...1.5

100 s: (0.85...1.75)

cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 870

Del.quantity : 137.u....142.0) cm3

: 4.00 1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

Speed

rpm

Rack travel in mm: 0.65

Testing:

1st rack travel in: 12.70

Speed

rpm : 915...925

2nd rack travel in: 4.00 rpm : 955...965 Speed 4th rack travel in: 1050 Speed rpm : 0.30...1.70 LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.5 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 300 Speed Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING rpm : 500 Speed Rack travel in mm: 4.9...5.1 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 870 Del.quantity cm3/ : 137.0...139.0 1000 s: (134.0...142.0) Spread cm3 : 4.00 1000 s: (7.5) Speed rpm : 500 Del.quantity cm3/ : 126.0...130.0 1000 s: (123.0...133.0) Spread cm3 : 6.00 1000 s: (9.00) Speed rpm : 700 Del.quantity cm3/: 134.0...138.0 1000 s: (131.0...141.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.70 Speed rpm : 915...925 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0) LOW IDLE

: 350

rpm Rack travel in mm: 4.4...4.6

Speed

E13

Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: MAN #3-7310

Note remarks

Test sheet

: MAN

Edition

: 15.02.94

Replaces

Test oil

: ISO-4113

Combination no. : 0 403 486 108

Injection pump

Pump designation : PES6MW100/321RS1208

EP type number

: 0 413 406 199

Governor

Governor design. : RSV350...900Mw1A360-

Governer no.

: 0 420 085 239

Customer-spec. information Customer

: MAN

Engine

: D0826LE 102

1st version kW

: 154.0

Rated speed

: 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 18...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.50...3.60

: (3.45...3.65)

Firing order : 1-5-3-6-2-4

Rack travel in mm : 9.00...12.00

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

Spread

Spread

rpm: 870

Rack travel in mm : 14.75...14.85

Del.quantity cm3/: 15.6...15.8

100 s: (15.3...16.1)

cm3 : 0.4

100 s: (0.7)

2nd speed

rpm : 350.0

Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 1.1...1.5

100 s: (0.85...1.75)

cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 3.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 870

Del.quantity

: 156.0...158.0 1000 : (153.0...161.0)

Spread

cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 87...95

Setting point:

Speed rpm

Rack travel in mm: 0.65

Testina:

1st rack travel in: 13.80

rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 965...975 Speed 4th rack travel in: 1050 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm: 4.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING Speed rpm : 350 Rack travel in mm: 4.9...5.1 FUEL DELIVERY CHARACTERISTICS 1st version Speed : 870 rpm Del.quantity cm3/: 156.0...158.0 1000 s: (153.0...161.0) Spread cm3 : 4.00 1000 s: (7.5) : 500 Speed rpm Del.quantity cm3/: 147.0...151.0 1000 s: (144.0...153.0) Spread cm3 : 6.001000 s: (9.00) : 700 Speed rom Del.quantity cm3/: 156.0...160.0 1000 s: (153.0...163.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 130.0...150.0

rpm

1000 s: (127.0...153.0)

: 350

Speed

LOW IDLE

Speed

E15

Rack travel in mm: 4.4...4.6 Del.quantity cm3/: 11.0...15.0 1000 s: (8.5...17.5) Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

: MAN #3-7311

BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order Note remarks Test sheet : MAN Edition : 15.02.94 Phasing Replaces Test oil : ISO-4113 Tolerance + - * Combination no. : 0 403 486 109 BASIC SETTING Injection pump 1st speed Pump designation : PES6MW100/321RS1208 EP type number : 0 413 406 199 Governor Governor design. : RSV350...1000Mw1A360 : 0 420 085 240 Governer no. Customer-spec. information Spread Customer : MAN Engine : DO826LE 103 1st version kW : 161.0 : 2000 Rated speed TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 18...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 : 1 417 413 047 Speed Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina . pressure, bar : 172...175 1st version Speed Del.quantity Test lines : 1 680 750 008 cm3 Spread Outside diameter x Wall thickness x Length mm : 6.00x2.00x600 RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant. per values Setting point: BEGINNING OF DELIVERY

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 : 0-60-120-180-240-300 : 0.50 (0.75) rpm: 970 Rack travel in mm : 14.75...14.85 Del.quantity cm3/: 14.8...15.0 100 s: (14.5...15.3) cm3 : 0.4100 s: (0.7) 2rd speed rpm : 350.0 Rack travel in mm : 4.4...4.6 Del.quantity cm3/: 1.1...1.5 100 s: (0.85...1.75) cm3 : 0.3100 s: (0.5) rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 3.20FULL LOAD DELIV. AT FULL LOAD STOP rpm : 970 : 148.0...150.0 1000 : (145.0...153.0) : 4.00 1000 : (7.50)position degrees: 87...95 : 800 Speed rpm Rack travel in mm: 0.65 Testing:

1st rack travel in: 13.80

Prestroke mm

Test pressure, bar: 30...32

: 3.50...3.60

: (3.45...3.65)

rpm : 1020...1030 Speed 2nd rack travel in: 4.00 rpm : 1080...1090 Speed 4th rack travel in: 1150 Speed rpm : 0.30...1.70LOW IDLE 1 Control lever position degrees: 64...72 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm: 4.4...4.6 SET IDLE AUXILIARY SPRING Speed rpm : 350 Rack travel in mm: 4.9...5.1 FUEL DELIVERY CHARACTERISTICS 1st version : 970 Speed rpm Del.quantity cm3/: 148.0...150.0 1000 s: (145.0...153.0) Spread cm3 : 4.00 1000 s: (7.5) Speed : 500 MCL Del.quantity cm3/: 139.0...143.0 1000 s: (136.0...146.0) Spread cm3 : 6.001000 s: (9.00) rpm : 700 Speed Del.quantity cm3/: 147.0...151.0 1000 s: (145.0...153.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.80 rpm : 1020...1030 Speed STARTING FUEL DELIVERY : 100 rpm Del.quantity cm3/: 130.0...150.0 1000 s: (127.0...153.0) LOW IDLE

Speed

E17

rpm

: 350

Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 11.0...15.0
1000 s: (8.5...17.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: MAN #3-7312

Note remarks

Test sheet : CUM Edition : 02.94

Replaces

Test oil : ISO-4113

Combination no. : 9 400 085 362

Injection pump

Pump designation : PES6A100b32G/3RS2827

EP type number : 9 400 084 030

Governor

Governor design. : RQV350...1100AB1276R

: 9 420 080 354 Governer no.

Customer-spec. information Customer : CUMMINS

Engine : 6 CT 8.3

1st version kW : 160.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 419 992 198

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.70...2.80 : (2.65...2.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00 & maximum rack tra: 3.50...4.50 Difference ° CS : 2

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 12.9...13.1

100 s: (12.7...13.3)

Spread cm3 : 0.3

100 s: (0.8)

rpm : 350.0 2nd speed Rack travel in mm: 4.9...5.1 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3)

cm3 : 0.5 Spread 100 s: (0.9)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1150

travel mm : 7.40...7.60

rpm : 250 2nd speed

: 0.40...0.90 travel mm

3rd speed rpm : 350

travel mm : 1.60...2.10 4th speed rpm : 600

travel mm

: 4.00...4.50 : 1350 5th speed rpm

: 9.10...9.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1240 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version Speed rpm : 1100 Aneroid pressure h: 1000 Del.quantity : 129.0...131.0 1000 : (127.0...133.0) Spread cm3 : 3.50 1000 : (8.00) RATED SPEED 1st version Control lever position degrees: 109...117 Setting point: Speed : 1240 Rack travel in mm: 16.5 Testing: 1st rack travel in: 11.10 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 rpm : 1285...1315 Speed 4th rack travel in: 1450 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 5.0 Testing: Speed rpm : 100 Minimum rack trave: 9.00 : 350 rom Rack travel in mm : 4.90...5.10 CONSTANT REGULATION Speed rpm : 300...500 TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 12.10...12.20 rpm : 700 2nd speed Rack travel in m: 12.10...12.20 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rpm hPa : 1000 Pressure Rack travel mm : 12.10...12.20

Measurement 1/min: 500 Speed 2nd pressure hPa : 320 Rack travel in m: 0.60...0.70 3rd pressure hPa : 600 Rack travel in m: 2.00...2.20 START CUT-OUT 1/min: 270 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 700 Del.quantity cm3/: 133.5...137.5 1000 s: (131.5...139.5) Speed rpm : 500 Del.quantity cm3/ : 94.5...96.5 1000 s: (92.5...98.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1145...1155 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 164.0...180.0 1000 s: (161.0...183.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed rpm : 350 Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5) Spread cm3 : 5.501000 s: (9.00) Remarks: : C..D.C. # 335 5245 Start-of-delivery mark 9° cam angle after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 02.94 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 481 Injection pump EP type number : 9 400 087 075 Governor Governor design. 11 : 9 420 080 356 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6CTA 1st version kW : 207.0 : 1800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 105 assembly Opening pressure, bar : 207...210 Test Lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00x1.50x600

Pump designation : PES6P120A320/3RS3264 : RQV350/870...900PA11 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 25...27 : 3.45...3.55 Prestroke mm : (3.40...3.60)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 870 Rack travel in mm : 12.30...12.40 Del.quantity cm3/: 21.5...21.7 100 s: (21.2...22.0) Spread cm3 : 0.5100 s: (0.9) rpm : 350.02nd speed Rack travel in mm : 6.1...6.3 Del.quantity cm3/: 0.7...1.3 100 s: (0.4...1.6) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 910 1st speed : 5.50...6.00 travel mm 250 2nd speed rpm travel mm : 0.50...1.00 3rd speed rpm : 400 travel mm : 2.50...3.00 4th speed rom : 700 travel mm : 4.40...4.60 5th speed rpm : 980 : 8.60...9.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 Speed rpm : 945 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 870 Del.quantity : 215.0...217.0 1000 : (212.0...220.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 105...113

Setting point:

Speed : 945 rpm Rack travel in mm: 16.5 4th rack travel in: 1050

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 69...77 Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 6.2

Testina:

Speed rpm : 100 Minimum rack trave: 10.00 rpm : 350 Speed

Rack travel in mm : 6.10...6.30

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 870

Rack travel in m: 12.30...12.40 od speed rpm : 500

2nd speed

Rack travel in m: 12.30...12.40

START CUT-OUT

Speed 1/min: 270 (290)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 275.0...295.0

1000 s: (271.0...299.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 7.0...13.0

1000 s: (4.0...16.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: C.D.C. # 335 5248

Sliding sleeve pre-travel = 6.5 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM Edition : 02.94 Replaces Test oil : ISO-4113 Combination no. : 9 400 087 482 Injection pump Pump designation : PES6P120A320/3RS3254 EP type number : 9 400 087 075 Governor Governor design. : RQV350/720...750PA11 12 Governer no. : 9 420 080 357 Customer-spec. information Customer : CLIMMINS : 6CTA Engine : 180.0 1st version kW : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 025 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 105 Opening pressure, bar : 207...210 Test lines : 1 680 750 015 Outside diameter

: (3.40...3.60)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 720 Rack travel in mm : 11.80...11.90 Del.quantity cm3/: 21.4...21.5 100 s: (21.1...21.9) Spread cm3 : 0.5100 s: (0.9) 2nd speed rpm : 350.0Rack travel in mm: 5.7...5.9 Del.quantity cm3/: 0.9...1.5 100 s: (0.6...1.8) Spread cm3 : 0.8100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 820 : 8.00...8.50 travel mm 2nd speed rpm : 300 travel mm : 0.80...1.30 3rd speed : 420 rpm travel mm : 3.10...3.60 : 600 4th speed rpm : 4.40...4.60 travel mm rpm : 770 5th speed travel mm : 8.00...8.50 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 805 Speed Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 720 Del.quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread

cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Setting point:

Speed rpm : 805 Rack travel in mm: 16.5 4th rack travel in: 900

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.8

Testing:

Speed rom Minimum rack trave: 10.00 rpm : 350 Speed

Rack travel in mm : 5.70...5.90

CONSTANT REGULATION

rpm : 300...430 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 720

Rack travel in m: 11.80...11.90

2nd speed rpm : 500

Rack travel in m: 11.80...11.90

START CUT-OUT

Speed 1/min: 270 (290)

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 270.0...290.0 1000 s: (266.0...294.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 350

Rack travel in mm : 5.70...5.90 Del.quantity cm3/: 9.0...15.0 1000 s: (6.0...18.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: C.D.C. # 335 5249

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after

start of delivery of cylinder 1.

Note inst. in remarks column

: VMA Test scheet Edition : 02.94 : 13.07.88 replaces Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L168-2 Type number : 0 460 404 051

Customer Part-No. :

Customer-specific information

Customer : VM

Engine : HR 492 HT

Power KW: 76 1/min: 2100 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 800

Setting value mm: 4.60...5.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 300

Setting value bar: 4.80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 800

Del. quantity cm3/ 1000s.: 56.50...57.50

Shutoft.

electromagnet Volt: 12 cm3/: 3.0 Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/ 1000s.: 45.50...46.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2300 Charge press hPa: 800

Del. quantity cm3/

1000s.: 27.00...33.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 37.00...67.00 mind 1000s.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500	+ Overlow quantity at overflow valve:
Charge press hPa: -	†
Injaty. cm3/ difference 1000s.: - 8.014.0 "	+ 1st speed 1/min: 600
	Charge press. hPa: 800
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
TD-travel dif.measurement	+ Overflow : 41.7086.20 + quantity cm3/10s: (26.70101.20)
correttore anticipo iniezione (SV) 1.Speed 1/min: 1500	T quantity cm5/105: (26.70(01.20)
Charge press hPa: -	+ 2nd speed 1/min: 2100 + Charge press. hPa: 800
TD-travel	+ Shutoff
difference mm: - 0.91.1 "	elestromagnet Volt: 12
Shutoff	Overflow : 55.60139.00
electromagnet Volt: 12	quantity cm3/10s: (40.60154.00)
	444116767 61137 1031 (40.00;111)41.007
Inspection-pump test specifications	Delivery-quant. and breakaway char.:
Test specifications in parentheses	
,	}
Timing-device characteristic:	1 1nd speed 1/min: 700
	Charge-air pressure-setting
2nd speed 1/min: 2100	+ point hPa: 450
Charge press hPa: 800	† LDA-stroke mm: 6.1
TD travel mm: 7.608.40	- Shutoff
mm: (7.308.70)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 52.0053.00
electromagnet Volt: 12	+ 1000s.: (50.0055.00)
3rd speed 1/min: 1500	+ 3rd speed 1/min: 2450
Charge press hPa: 800	† Charge press. hPa: 800
TD travel mm: 4.605.00	+ Shutoff
mm: (4.105.50) Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	† Del. quantity cm3/: 1.009.00
4th speed 1/min: 1000	1000s.: (0.509.50)
Charge press hPa: 800	+ 5th speed 1/min: 2300
TD travel mm: 1.602.40	† Charge press. hPa: 800 + Shutoff
mm: (1.302.70)	electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 27.0033.00
electromagnet Volt: 12	10008.: (26.0034.00)
	- 9th speed 1/min: 2100
Supply-pump pressure characteristic:	Charge press. hPa: 800
	+ Shutoff
1st speed 1/min: 2100	+ electromagnet Volt: 12
Charge press. hPa: 800	+ Del. quantity cm3/: 48.9051.90
Supply-pump	† 1000s.: (47.4053.40)
pressure bar: 6.907.50	† 12th speed 1/min: 1500
Shutoff	+ Charge press. hPa: 800
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1500	+ electromagnet Volt: 12
Charge press. hPa: 800	† Del. quyntity cm3/: 56.5057.50
Supply-pump pressure bar: 4.805.40	10005.: (55.0059.00)
pressure bar: 4.805.40 Shutoff	18th speed 1/min: 600
electromagnet Volt: 12	+ Charge press. hPa: - + Shutoff
3rd speed 1/min: 600	F electromagnet Volt: 12
Charge press. hPa: 800	Del. quantity cm3/: 45.5046.50
Supply-pump	100Cs.: (43.5048.50)
pressure bar: 1.802.40	+ 20th speed 1/min: 600
Shutoff	+ Charge press. hPa: 800
electromagnet Volt: 12	+ Shutoff
-	+ electromagnet Volt: 12

Del. quantity cm3/: 58.50...61.50 1000s.: -Mech. shutoff: Electr. shutoff: 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 400 Shutoff 1000s.: (3.0) 2nd speed 1/min: 600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...2.00 1000s.: (0.00...2.00) 1/min: 450 3rd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.50...8.50 1000s.: (0.50...10.50) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1500 Charge press. hPa: Inj.-qty. cm3/ : -3.0...-5.0 # difference 1000s.: -Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Charge press. hPa: -Supply pump-: -0.1...0.3 # pressure difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...65.00 1000s.: (45.00...65.00)

2nd speed 1/min: 550
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 37.00...57.00
1000s.: (37.00...57.00)

4th speed 1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 37.00...67.00
1000s.: (37.00...67.00)

Shutoff electromagnet:
Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : VMA : 02.94 Edition : 14.02.92 replaces Calibrating oil : ISO-4113

Injection pump : VE4/10F1600L352 Type number : 0 460 404 061

Customer Part-No. :

Customer-specific information

Customer : VM

: HR 494 HP Engine

KW: 53 Power 1/min: 1600 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1200

Setting value bar: 4.80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1200 Speed

Del. quantity cm3/

1000s.: 43.50...44.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (3.5)

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/ 1000s.: 11.50...15.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

1/min: 1650

Del. quantity cm3/

1000s.: 27.00...33.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 45.00...85.00

1000s.: 45.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1200

cm3/Inj.-qty.

difference 1000s.: - 10.0..-18.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1200 1.Speed

TD-travel

mm: -0.9...-1.1 # difference

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses 5th speed 1/min: 1650 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 27.00...33.00
1000s.: (24.00...36.00)
8th speed 1/min: 1625 Timing-device characteristic: 1/min: 1600 mm: 3.60...4.40 mm: (3.30...4.70) 2nd speed TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 33.50...41.50 9th speed 1/min: 1600 Shutoff electromagnet Volt: 12 1/min: 1200 3rd speed Shutoff mm: 1.90...2.30 mm: (1.40...2.80) electromagnet Volt: 12
Del. quantity cm3/: 37.00...40.00
1000s.: (35.50...41.50) TD travel Shutoff electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.70...1.50 12th speed 1/min: 1200 Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 43.50...44.50
1000s.: (41.00...47.00) mm: (0.40...1.80) Shutoff electromagnet Volt: 12 20th speed 1/min: 600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.50...45.50 1000S.: (41.00...47.00) Supply-pump pressure characteristic: 2nd speed 1/min: 600 Supply-pump pressure bar: 2.40...3.00 Mech. shutoff: Shutoff Mech. Abstellung: electromagnet Volt: 12 3rd speed 1/min: 1200 1st speed 1/min: 1600 Supply-pump Del. quantity cm3/: 0.00...3.00 bar: 4.80...5.40 pressure 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 1/min: 1600 4th speed Supply-pump Electr. shutoff: pressure bar: 6.40...7.00 Shutoff 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff electromagnet volt: -1/min: 600 1st speed Shutoff Idle delivery: electromagnet Volt: 12 : 41.70...86.20 Overflow îst speed 1/min: 400 cm3/10s: (26.70...101.20) 1/min: 1600 quantity Shutoff electromagnet Volt: 12
Del. quentity cm3/: 11.50...15.50
1000s.: (9.50...17.50)
Dispersion cm3/: 3.5 2nd speed Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 cm3/10s: (40.60...154.00) quantity 1000s.: (3.5) 2nd speed 1/min: 550 Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 2nd speed 1/min: 1700 Shutoff 3rd speed 1/min: 480 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12

```
Del. quantity cm3/: 2.00...8.00
1000$.: (1.00...9.00)
Load-dependent start of delivery:
Inj.-qty.dif.measurement:
              1/min: 1200
1st speed
Inj.-qty. cm3/ : -5.0...-7.0 "
difference 1000s.: -
Shutoff
electromagnet Volt: 12
SP press.-dif.measurement:
pompa di mandata (FP):
1st speed
              1/min: 1200
Supply pump-
                    : -0.1...-0.3 "
pressure
difference
                bar: -
Shutoff
electromagnet Volt: 12
Automatic starting fuel delivery:
1st speed
              1/min: 250
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 50.00...80.00
1000s.: (50.00...80.00)
              1/min: 450
2nd speed
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 40.00...60.00
1000s.: (40.00...60.00)
4th speed
              1/min: 100
Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 45.00...85.00
             1000s.: (45.00...85.00)
Shutoff electromagnet:
Cut-in
 min voltage
                    : 10.0
                    : 12.0
Rated voltage
Mounting and assembly dimensions:
Designation
                 mm: 3.2...3.4
mm: 5.7...5.9
K
KF
                 mm: 0.6...1.0
MS
SVS max.
                 mm: 1.3
XK
                 mm: 17.0...19.0
XL
                 mm: 14.2...17.6
Remarks:
```

Note inst. in remarks column

Test scheet : VMA Edition : 02.94 replaces : 03.12.92 Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L414 Type number : 0 460 404 068

Customer Part-No. :

Customer-specific information

Customer

Engine : HR 425 CLI

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 × Wall thickness : 2.00 × Lenath mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 1.40...1.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000 Del. quantity cm3/

1000s.: 65.50...66.50

Shutoff

electromagnet Volt: 12 cm3/: 3.0 Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/ 1000s.: 43.00...44.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 450

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2300 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 40.00...46.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 45.00...75.00

1000s.: 45.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed Charge press hPa: 1000

cm3/Inj.-qty.

difference 1000s.: -28.0...-34.0 #

F02

Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
TD-travel dif.measurement +	•
correttore anticipo iniezione (SV)	Overlow quantity at overflow valve:
1.Speed 1/min: 1500 +	, , , , , , , , , , , , , , , , , , , ,
Charge press hPa: 1000	1st speed 1/min: 700
TD-travel +	Charge press. hPa: 1000
difference mm: -0.50.7 #	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Overflow : 41.7083.40
1	quantity cm3/10s: (26.7098.40)
Inspection-pump test specifications +	2nd speed 1/min: 2100
Test specifications in parentheses	Charge press. hPa: 1000
Test spectification in pareneteses	Shutoff
Timing-device characteristic:	
Thirting device character istic.	electromagnet Volt: 12
2nd speed 1/min: 1500	0verflow : 55.60139.00
Charge press hPa: 1000	quantity cm3/10s: (40.60154.00)
TD travel mm: 3.404.20	Baldinamia and Caralia di
	Delivery-quant. and breakaway char.:
mm: (3.104.50)	
Shutoff +	4 1 1 4/1 700
electromagnet Volt: 12	1nd speed 1/min: 700
3rd speed 1/min: 1000 +	Charge-air pressure-setting
Charge press hPa: 1000	point hPa: 350
TD travel mm: 1.401.80	LDA-stroke mm: 7.1
mm: (0.902.30)	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 55.5056.50
4th speed 1/min: 700 ‡	10008.: (53.5058.50)
Charge press hPa: 1000	3rd speed 1/min: 2550
TD travel mm: 0.201.00	Charge press. hPa: 1000
mm: $(0.001.30)$	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 0.008.00
5th speed 1/min: 2100	10005.: (0.008.00)
Charge press. hPa: 1000	5th speed 1/min: 2300
TD travel mm: 6.106.90	Charge press. hPa: 1000
mm: (5.807.20)	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 40.0046.00
etectionagnet vott. 12	4000c . (70.00
Supply-pump pressure characteristic:	1000S.: (39.0047.00)
supply-pump pressure characteristic:	9th speed 1/min: 2100
1st seed 1/min. 2100	Charge press. hPa: 1000
1st speed 1/min: 2100	Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump +	Del. quantity cm3/: 63.0066.00
pressure bar: 7.207.80	1000\$.: (61.5067.50)
Shutoff	12th speed
electromagnet Volt: 12	Charge press. hPa: 1000
2nd speed 1/min: 1000	Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump +	Del. quyntity cm3/: 65.5066.50
pressure bar: 4.204.80	1000s.: (64.0068.00)
Shutoff	18th speed 1/min: 700
electromagnet Volt: 12	Charge press. hPa: -
3rd speed 1/min: 700 +	Shutoff
Charge press. hPa: 1000	electromagnet Volt: 12
Supply-pump +	Del. quantity cm3/: 43.0044.00
pressure bar: 3.203.80	1000s.: (41.0046.00)
+	20th speed 1/min: 700
1	•

Charge press. hPa: 1000 Supply pump-Shutoff pressure : -0.1...-0.3 " electromagnet Volt: 12 Del. quantity cm3/: 65.50...68.50 difference bar: -1000s.: (64.00...70.00) Part-load del.at 3rd inj.-gty. terza fermo della portata stop (EGR set) scarico) (ARF) Delivery-quant. and breakaway char .: gaz d'échappement-ARF) Inj.-qty.values, temp.-compensated mm: 12.0 Spacing temperatura 1st speed 1/min: 1000 tel. quantity am3/: 0.00...8.00 Charge press. hPa: 1000 1000s.: (0.00...8.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...44.00 1000s.: (41.00...46.00) Mech. shutoff: Electr. shutoff: Automatic starting fuel delivery: 1st speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 1/min: 400 1st speed 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 electromagnet volt: -1000s.: (45.00...75.00) Idle delivery: 1/min: 550 2nd speed 1st speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) Shutoff 1/min: 100 4th speed 1000s.: (3.0) Shutoff 2nd speed 1/min: 600 electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) 3rd speed 1/min: 500 Shutoff electromagnet: 3rd speed Shutoff Cut-in electromagnet Volt: 12 Del. quantity cm3/: 2.50...7.50 1000s.: (2.00...8.00) min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Load-dependent start of delivery: Inj.-qty.dif.measurement: Designation mm: 3.2...3.4 mm: 5.2...5.6 K 1st speed 1/min: 1500 Charge press. hPa: 1000 Inj.-qty. cm3/ : -25.0..-27.0" KF MS mm: 0.6...1.0 LDA stroke mm: 7.1 difference 1000s.: mm: 38.8...40.8 Shutoff mm: 37.2...46.8 electromagnet Volt: 12 Ajustement Potentiometer: SP press.-dif.measurement: pompa di mandata (FP): Supply voltage 1st speed 1/min: 1500 pot. volt: 5.0 Output volt pot. volt: 2.31

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : VMA Edition : 02.94 replaces : 02.08.93 Calibrating oil : ISO-4113

Injection pump : VE4/10F2100L414-1 Type number : 0 460 404 073

Customer Part-No. :

Customer-specific information

Customer

: HR 425 CLIRS Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000 Setting value mm: 1.20...1.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 4.70...5.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 65.00...66.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.01000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 43.00...44.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 2300 Speed Charge press hPa: 1000

Del. quantity cm3/ 1000s.: 40.00...46.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 45.00...75.00 mind 1000s.: 45.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500 Charge press hPa: -Inj.-qty. cm3/

difference 1000s.: -13.0...-19.0 #

F06

Shutoff		+	Shutoff	
electromagnet Volt:	12	1.	electromagnet Volt:	12
TD-travel dif.measu		1	Overflow :	/1 70 97 /0
		T		
correttore anticipo		+	quantity cm3/10s:	
1. Speed 1/min:		+	2nd speed 1/min:	
Charge press hPa:	-	+	Charge press. hPa:	1000
TD-travel		1	Shutoff	
	-1.41.6 #	1	electromagnet Volt:	10
Shutoff	1.4 1.0 #	T	Overflow	FE (0 170 00
	40	†	Overflow :	
electromagnet Volt:	12	+	quantity cm3/10s:	(40.60154.00)
_		+		
Inspection-pump tes	t specifications	+	Delivery-quant. and	breakaway char.:
Test specifications	in parentheses	1		•
	··· paradone	1		
Timing-device chara	rtoristic	1	1nd speed 1/min:	חחל
Timing device chara	cteristic.	T		
		+	Charge-air pressure	
2nd speed 1/min:		+	point hPa:	350
Charge press hPa:	1000	4.	LDA-stroke min:	7.0
TD travel mm:	7.308.10	1	Shutoff	
mm.	(7.008.40)	1	electromagnet Volt:	12
Shutoff	(7.000.40)	T	etectrollagriet vott.	E/ 00 FF 00
	40	†	Del. quantity cm3/:	34.0035.00
electromagnet Volt:		+	1000S.:	(52.0057.00)
3rd speed 1/min:		+	3rd speed 1/min:	2550
Charge press hPa:	1000	+	Charge press. hPa:	
TD travel mm:		1	Shutoff	, 555
	(0.702.10)	1		10
Shutoff	(0.702.10)	T	electromagnet Volt:	
	40	†	Del. quantity cm3/:	
electromagnet Volt:		+		(0.008.00)
6th speed 1/min:	1500	+	5th speed 1/min:	2300
Charge press. hPa:	1000	1	Charge press. hPa:	
	4.004.80	L	Shutoff	. 555
	(3.705.10)	1		12
	(3.703.10)	T	electromagnet Volt:	10 00 11 00
Shutoff	40	†	Del. quantity cm3/:	40.0046.00
electromagnet Volt:	12	+		(39.0047.00)
		+	9th speed 1/min:	2100
Supply-pump pressure	e characteristic:	1	Charge press. hPa:	1000
		1	Shutoff	, 500
1st speed 1/min:	2100	1		10
		T	electromagnet Volt:	
Charge press. hPa:	1000	†	Del. quantity cm3/:	
Supply-pump		†		(60.0066.00)
pressure bar:	7.608.20	+	12th speed 1/min:	1500
Shutoff		1	Charge press. hPa:	1000
electromagnet Volt:	12	1	Shutoff	
2nd speed 1/min:		L		10
	1000	T	electromagnet Volt:	(E 00 // 00
	1000	†	Del. quyntity cm3/:	
Supply-pump		+		(63.5067.50)
pressure bar:	4.705.30	+	18th speed 1/min:	700
Shutoff		+	Charge press. hPa:	-
electromagnet Volt:	12	1	Shutoff	
3rd speed 1/min:		L	electromagnet Volt:	12
		T		
Charge press. hPa:	1000	†	Del. quantity cm3/:	
Supply-pump		+		(41.0046.00)
pressure bar:	3.804.40	+	20th speed 1/min:	700
Shutoff		∔	Charge press. hPa:	
electromagnet Volt:	12	\perp	Shutoff	
The state of the s	· •	L		12
Ovania, sumatitus -t	ought out and age	T	electromagnet Volt:	
Overlow quantity at	over row valve:	†	Del. quantity cm3/:	
		+	1000s.:	(63.5069.50)
1st speed 1/min:	700	+		
Charge press. hPa:	1000	+	Mech. shutoff:	

F07

Del. quantity cm3/: 43.00...44.00 Electr. shutoff: 10:003.: (41.00...46.00) 1/min: 450 1st speed Automatic starting fuel delivery: Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1st speed 1/min: 400 Shutoff Shutoff electromagnet volt: electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) Idle delivery: 1st speed 1/min: 450 2nd speed 1/min: 550 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 1000s.: (10.00...20.00) Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) Dispersion cm3/: 3.0 1000s.: (3.0) 1/min: 100 4th speed 1/min: 600 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (45.00...75.00) 1000s.: (0.00...5.00) 1/min: 500 3rd speed Shutoff electromagnet: Shutoff electromagnet Volt: 12 Cut-in Del. quantity cm3/: 1.50...6.50 1000s.: (1.00...7.00) min voltage : 10.0 Rated voltage : 12.0 min voltage Load-dependent start of delivery: Mounting and assembly dimensions: Inj.-qty.dif.measurement: Designation 1st speed 1/min: 1500 mm: 3.2...3.4 Charge press. hPa: Inj.-qty. cm3/ : -7.0...-9.0 " KF mm: 5.2...5.6 MS mm: 0.6...1.0 difference 1000s.: -SVS max. mm: 4.3 Shutoff mm: 7.0 LDA stroke mm: 38.8...40.8 mm: 36.2...45.8 electromagnet Volt: 12 Ya Yb SP press.—dif.measurement: pompa di mandata (FP): Ajustement Potentiometer: 1st speed 1/min: 1500 Charge press. hPa: -Supply voltage Supply pumpvolt: 5.0 pot. : -0.1...-0.3 " pressure Output volt difference bar: volt: 2.31 pot. Shutoff electromagnet Volt: 12 Remarks: Part-load del.at 3rd inj.-qty. terza fermo della portata Operate control lever after each stop (EGR set) manifold-pressure compensator pressure scarico) (ARF) change. gaz d'échappement-ARF) mm: 12.0 Ya = Distance between VE flange and speed-control lever in idle Spacina 1st speed 1/min: 1000 position Measurement point = edge of control Charge press. hPa: 1000 Shutoff lever on drive end electromagnet Volt: 12

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : SOF Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/10F2050R589 Type number : 0 460 404 081

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. • C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200

Setting value mm: 2.00...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200 Speed

Setting value bar: 5.80...6.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1200

Del. quantity cm3/

1000s.: 41.50...42.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2,5 1000s.: (2,5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 12.0...16.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2300 Speed

Del. quantity cm3/

1000s.: 31.00...35.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...110.00

mind 1000s.: 70.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1200 Speed

cm3/Inj.-qty.

difference 1000s.: -15.0...-21.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1200

TD-travel

difference mm: -0.7...-0.9 #

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic:	Del. quantity cm3/:	41.5042.50 (40.0044.00)
1st speed 1/min:	1200 I	2nd speed 1/min:	
	2.002.20 I	Shutoff	2000
	(1.502.70)		12
		electromagnet Volt:	
electromagnet Volt:		Del. quantity cm3/:	
2nd speed 1/min:		1000s.:	
	4.405.00	3rd speed 1/min:	2400
	(4.005.40)	Shutoff	
Shutoff	 	electromagnet Volt:	12
electromagnet Volt:	12 🗼	Del. quantity cm3/:	11.00 .21.0
3rd speed 1/min:		1000s.:	_
	5.606.20		
	(5.206.60)		2300
	(3.206.60)	Shutoff	40
Shutoff	42	electromagnet Volt:	
electromagnet Volt:		Del. quantity_cm3/:	31.0035.00
4th speed 1/min:	2100 +	1000\$.:	(27.0039.00)
TD travel mm:	7.007.80	5th speed 1/min:	2100
mm:	(6.708.10)	Shutoff	
Shutoff	1	electromagnet Volt:	12
electromagnet Volt:	12	nel quantity cm3/:	38 50 /1 50
etecti diagree vott.	'° T	Del. quantity cm3/: 1000s.:	/27 ED /2 ED\
Complete winner management	h	IUUUS.:	4500
Supply-pump pressur	e characteristic:	6th speed 1/min:	
	†	Del. quantity cm3/:	40.0043.00
1st speed 1/min:	600 +	1000s.:	(39.0044.00)
Supply-pump	+	7th speed 1/min:	600
pressure bar:	3.904.50	Del. quantity cm3/:	
Shutoff	1	10005	(34.5040.50)
electromagnet Volt:	12	10000	(34.30.7.40.30)
2nd speed 1/min:	1200 T	Mech. shutoff:	
	1200	mech. Shutoir:	
Supply-pump	T 00 (/0		
	5.806.40	Electr. shutoff:	
Shutoff	+		
electromagnet Volt:		ist speed 1/min:	375
3rd speed 1/min:	2100 +	Del. quantity cm3/:	0.003.00
Supply-pump	1		(0.003.00)
	8.308.90	Shutoff	(0.005.00)
Shutoff	0.300.70		
	12 T	electromagnet volt:	_
electromagnet Volt:	10 1	7 41 - 4-1 2	
6	†	Idle delivery:	
Overlow quantity at	overflow valve:		
	+	1st speed 1/min:	375
1st speed 1/min:	600 +	Shutoff	
Shutoff	+	electromagnet Volt:	12
electromagnet Volt:	12 \	Del. quantity cm3/:	
	41.7083.40		(9.0019.00)
quantity cm3/10s:			
2nd speed 1/min:	7	10005.:	
Shutoff	12	2nd speed 1/min:	400
electromagnet Volt:	16	Shutoff	
Overflow :	55.60137.90	electromagnet Volt:	
quantity cm3/10s:	(41.70152.90)	Del. quantity cm3/:	
-			(0.003.00)
Delivery-quant. and	breakaway char.:		
TITLE OF MEMORY WING		Load-dependent start	of delivery.
	Ţ		
1nd enough 1/mins	1200	Injqty.dif.measure	and IL:
1nd speed 1/min:	1200 +		4000
Shutoff	+	1st speed _1/min:	
electromagnet Volt:	12 +	<pre>Injqty. cm3/ :</pre>	
	 	difference 1000S.:	-

Shutoff electromagnet Volt: 12 2nd speed 1/min: 1200 Inj.-qty. cm3/: 0.0...+3.0 'Z difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo infezione (SV): difference mm: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Supply pumppressure : -0.1...-0.3 " difference bar: -Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échaopement-ARF) Spacing mm: 12.0 1st speed 1/min: 1200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 19.5...20.5 1000S.: (17.5...22.5) Automatic starting fuel delivery: 1/min: 500 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -2nd speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...110.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: 5.6...6.0
MS mm: 1.7...1.9
Ya mm: 42.8...44.8
Yb mm: 62.4...70.8

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery

F12

Note inst. in remarks column

Test scheet : SOF Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/10F2050R591 : 0 460 404 982 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.67

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil •c return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1200 Speed

Setting value mm: 2.10...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1200

Setting value bar: 6.00...6.60

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1200

Del. quantity cm3/ 1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2,5 1000s.: (2,5)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/ 1000s.: 12.0...16.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2300 Speed

Del. quantity cm3/

1000s.: 23.00...27.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...110.00

1000s.: 70.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1200 Speed

Inj.-qty. cm3/

difference 1000S.: -15.0...-21.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1200

TD-travel

difference mm: -0.7...-0.9 #

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic: Del. quantity cm3/: 42.09...43.09 1000s.: (40.50...44.50) 1/min: 1200 mm: 2.10...2.30 mm: (1.60...2.80) 1st speed 1/min: 2600 2nd speed TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: electromagnet Volt: 12 2rid speed 1/min: 1600 mm: 4.50...5.10 mm: (4.10...5.50) TD travel 3rd speed 1/min: 2400 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 3.00...13.00
10005:: -Shutoff electromagnet Volt: 12
3rd speed 1/min: 1800
TD travel mm: 5.70...6.30 1/min: 2300 4th speed mm: (5.30...6.70) Shutoff electromagnet Volt: 12
Del. quantity cm3/: 23.00...27.00
1000s.: (19.00...31.00) Shutoff electromagnet Volt: 12 1/min: 2100 4th speed TD travel mm: 7.00...7.80 1/min: 2100 5th speed mm: (6.70...8.10) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 39.00...42.00 1000S.: (38.00...43.00) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: 1/min: 1500 6th speed Del. quantity cm3/: 40.50...43.50 1000s.: (39.50...44.50) 1/min: 600 1st speed 7th speed Supply-pump 1/min: 600 Del. quantity cm3/: 35.50...39.50 1900s.: (34.50...40.50) pressure bar: 4.10...4.70 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1200 Mech. shutoff: Supply-pump pressure bar: 6.00...6.60 Electr. shutoff: Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 1st speed 1/min: 375 3rd speed Del. quantity cm3/: 0.00...3.00 Supply-pump 1000\$ (0.00...3.00) bar: 8.50...9.10 pressure Shutoff Shutoff electromagnet volt: electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1/min: 375 1st speed 1st speed 1/min: 600 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 12.00...16.00 1000s.: (9.00...19.00) Dispersion cm3/: 2.5 electromagnet Volt: 12 Overflow . : 41.70...83.40 cm3/10s: (27.80...97.30) 1/min: 2100 quantity 2nd speed 1000s.: (2.5) 1/min: 465 Shutoff 2nd speed electromagnet Volt: 12 Shutoff : 55.60...137.90 Overflow electromagnet Volt: 12 cm3/10s: (41.70...152.90) Del. quantity cm3/: 0.00...3.00 quantity 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1200 1nd speed Shutoff 1st speed 1/min: 1200 electromagnet Volt: 12 Inj.-qty. cm3/ : -13.0..-15.0" difference 1000S.: -

electromagnet Volt: 12 2nd speed 1/min: 1200 cm3/: 0.0...+3.0 'Z Inj.-aty. difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1200 TD-travel : -0.7...-0.9 ' difference mn: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1200 Supply pumppressure : -0.1...-0.3 " difference bar: -Part-load del.at 3rd inj.-gty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0 1st speed 1/min: 1200 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 29.5...33.5 10**00**S.: (29.0...34.0) Automatic starting fuel delivery: 1st speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: -2nd speed 1/min: 300 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: -3rd speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...110.00 1000s.: -Shutoff electromagnet: Cut-in

Shutoff

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: 5.6...6.0
MS rm: 1.6...2.0
Ya nm: 42.9...44.9
Yb mm: 31.7...39.7

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery

min voltage

: 10.0

Note inst. in remarks column

Test scheet : VWW : 02.94 Edition : 19.12.86 replaces Calibrating oil : ISO-4113

Injection pump : VE6/10F2400L116-5 Type number : 0 460 406 036

Customer Part-No.:

Customer-specific information

Customer

Engine : 087 T

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlot press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 × Wall thickness : 2.00 x Length mm: 840

Start of delivery mm: -Prestroke (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500 Charge press. hPa: 750

Setting value mm: 1.50...1.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 750 Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 42.60...43.60

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/ 1000s.: 26.70...27.70

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 415

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s. (3.0)

Full-load speed regulation

Speed 1/min: 2675 Charge press hPa: 750

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 40.00...70.00

mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1200 2nd speed Charge press hPa: 750

TD travel mm:	0.301.10	Shutoff
	(0.001.40)	electromagnet Volt: 12
Shutoff	}	Del. quantity cm3/: 33.5034.50
electromagnet Volt:		1000s.: (31.0037.0
3rd speed 1/min:		2nd speed 1/min: 2850
Charge press hPa:	750	Charge press. hPa: 750
TD travel mm:	1.501.90	Shutoff
m:	(1.00,2.40)	electromagnet Volt: 12
Shutoff	1	Del. quantity cm3/: 0.003.00
electromagnet Volt:	12 🗼	1000\$.: (0.003.00)
4th speed 1/min:		3rd speed 1/min: 2675
Charge press hPa:		Charge press. hPa: 750
TD travel. mm:		Shutoff
mm:	(3.404.80)	electromagnet Volt: 12
Shutoff	1	Del. quantity cm3/: 11.0015.00
electromagnet Volt:	12 I	1000S.: (9.0017.00)
cectionagiet vott.	· T	
Supply-pump pressure	a characteristic.	
additory bank hisessan	e characteristic:	Charge press. hPa: 750
1st speed 1/min:	4m T	Shutoff
		electromagnet Volt: 12
Charge press. hPa:	750 †	Del. quantity cm3/: 18.0028.00
Supply-pump	7 70 7 00	1000s.: (17.0029.00
	3.303.90	5th speed 1/min: 2400
Shutoff	10 †	Charge press. hPa: 750
electromagnet Volt:		Shutoff
2nd speed 1/min:		electromagnet Volt: 12
Charge press. hPa:	750 +	Del. quantity cm3/: 36.3038.30 1000s.: (35.1039.50
Supply-pump	<u>+</u>	1000s.: (35.1039.5)
	5.706.30	6th speed 1/min: 1500
Shutoff	+	Charge press. hPa: 750
electromagnet Volt:		Shutoff
3rd speed 1/min:	2400 +	electromagnet Volt: 12
Charge press. hPa:	750 🗼	Del. quantity cm3/: 42.6043.60
Supply-pump	+	1000s.: (40.9045.3)
	8.068.60	7th speed 1/min: 600
Shutoff	+	Charge press. hPa: 750
electromagnet Volt:	12 🗼	Shutoff
3	_	electromagnet Volt: 12
Overlow quantity at	overflow valve:	Del. quantity cm3/: 35.5038.50
The second secon	1	10005.: (34.0040.00
1st speed 1/min:	600	8th speed 1/min: 600
Charge press. hPa:		Charge press. hPa: -
Shutoff	1	Shutoff
electromagnet Volt:	12 I	electromagnet Volt: 12
	41.7083.40	Del. quantity cm3/: 26.7027.70
quantity cm3/10s:		1000S.: (24.2030.20
2nd speed 1/min:	2/00	10003.1 (24.20.1.30.20
Charge press. hPa:		Mech. shutoff:
Shutoff	700	mech. Shutoff:
	12	Clarks objects.
electromagnet Volt: Overflow:		Electr. shutoff:
	55.60138.90	Anh
quantity cm3/10s:	(41./0155.70)	1st speed 1/min: 415
Daldrama minute in its	handle was also	Del. quantity cm3/: 0.003.00
Delivery-quant. and	breakaway char.:	10008.: (0.003.00)
	†	Shutoff
Amalaurah A.	+	electromagnet volt: -
1nd speed 1/min:		~ 14
Charge-air pressure	-setting +	Idle delivery:
point hPa:		
LDA-stroke mm:	4.8	1st speed 1/min: 415

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000s.: (4.00...12.00) cm3/: 2.0 Dispersion 1000s.: (3.0) 1/min: 750 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 430 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1000s.: -2nd speed 1/min: 230 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation Κ mm: 3.2...3.4 KF mm: 6.3...6.7 MS mm: 1.7...1.9 SVS max. mm: 2.8 LDA stroke mm: 4.8 mm: 8.5...10.5 mm: 71.0...89.6 Ya Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control

Yb = Distance between VE flange and

lever on drive end

speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : ONA Edition : 02.94

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE6/10F1500R209-6 Type number : 0 460 406 066

Customer Part-No. :

Customer-specific information

Customer : ONAN

Engine : L 634 TA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating—oil return temp. *C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400 Charge press. hPa: 800

Setting value mm: 1.40...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1400 Charge press hPa: 800

Setting value bar: 4.80...5.40

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 55.50...56.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 700

Del. quantity cm3/

1000s.: 42.50...43.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/

1000s.: 14.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 1640 Charge press hPa: 800

Del. quantity cm3/

1000s.: 20.00...24.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 42.00...92.00

mind 1000s.: 42.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1100 Charge press hPa: 800

Inj.-qty. cm3/

difference 1000s.: -8.50...-16.5 #

Shutoff	+	Shutoff	
electromagnet Volt:	12	electromagnet Volt:	12
TD-travel dif.measu	rement \pm		41.7083.40
correttore anticipo	iniezione (SV) 🗼	quantity cm3/10s:	
1.Speed 1/min:		2nd speed 1/min:	
Charge press hPa:	800 +	Charge press. hPa:	
TD-travel	1	Shutoff	000
difference mm:	-0.50.7 #	electromagnet Volt:	12
Shutoff	1	Overflow :	
electromagnet Volt:	12	quantity cm3/10s:	(41 70 153 90)
	1	quarterly chartos.	(41.70199.707
Inspection-pump tes	t specifications	Delivery-quant. and	hreakauay char .
Test specifications	in narentheses	beervery quarter and	Dicaraway Chai
rest spectriffications	1. parerieleses		
Timing-device chara	rtaristic: I	1nd speed 1/min:	700
Thing device chara	I	Charge-air pressure	
2nd speed 1/min:	1400 · I	point hPa:	75CL 111G
Charge press hPa:		Shutoff	טככ
TD travel mm:			10
	(3.805.20)	electromagnet Volt:	
Shutoff	(3.603.20)	Del. quantity cm3/:	
	12		(46.3050.80)
electromagnet Volt:	1400	2nd speed 1/min:	
3rd speed 1/min:		Charge press. hPa:	800
Charge press hPa:		Shutoff	4.0
	2.703.30	electromagnet Volt:	12
	(2.703.70)	Del. quantity cm3/:	0.006.00
Shutoff	+		(0.006.00)
electromagnet Volt:		3rd speed 1/min:	1640
4th speed 1/min:		Charge press. hPa:	800
Charge press hPa:		Shutoff	
TD travel mm:	1.402.20	electromagnet Volt:	12
तका:	(1.102.50)	Del. quantity cm3/:	
Shutoff	4		(18.0026.00)
electromagnet Volt:	12 🗼	4th speed 1/min:	
•	<u> </u>	Charge press. hPa:	
Supply-pump pressure	e characteristic:	Shutoff	
asteles, leaves to acce.		electromagnet Volt:	12
1st speed 1/min:	700	Del. quantity cm3/:	
Charge press. hPa:		10005.:	
Supply-pump	1	5th speed 1/min:	
	2.302.90	Charge press. hPa:	
Shutoff	I	Shutoff	000
electromagnet Volt:	12 I	electromagnet Volt:	12
2nd speed 1/min:			
Charge press. hPa:		Del. quantity cm3/:	
	*************************************		(51.7056.30)
Supply-pump	3.804.40 I	6th speed 1/min:	
pressure bar: Shutoff	3.004.40	Charge press. hPa:	800
	12	Shutoff	40
electromagnet Volt:	1/00	electromagnet Volt:	12
3rd speed 1/min:		Del. quantity cm3/:	55.5056.50
Charge press. hPa:	****		(53.7058.30)
Supply-pump	+ 70 5 (0	7th speed 1/min:	
	4.705.40	Charge press. hPa:	
Shutoff	+	Shutoff	
electromagnet Volt:	12 +	electromagnet Volt:	
	. 	Del. quantity_cm3/:	
Overlow quantity at	overflow valve:	1000s.:	(40.7045.30)
	+		
1st speed 1/min:		Mech. shutoff:	
Charge press. hPa:	800 +	Mech. Abstellung:	

1/min: 1500 1st speed Charge press. hPa: 800 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) Shutoff electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 350 Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 400 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 14.00...18.00 1000s.: (12.00...20.00) cm3/: 2.0 Dispersion 1000s.: (3.0) 1/min: 450 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000S:: (0.00...6.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1100 Charge press. hPa: 800 Inj.-qty. cm3/: -5.0...-7.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1/min: 1100 1st speed Charge press. hPa: 800 Supply pump-: -0.1...-0.3 " pressure bar: difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 18.00...42.00 1000s.: -

1/min: 220 2nd speed Shutoff. electromagnet Volt: 12 Del. quantity cm3/: 42.00...92.00 1000s.: -4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.00...92.00 1000s.: -Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: -KF mm: 5.8...6.2 mm: 0.8...1.2 MS SVS max. mm: 1.9 LDA stroke mm: mm: 30.8...34.8 Ya Yb mm: 64.2...78.8 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : VWW : 02.94 Edition replaces : 07.93 Calibrating oil : ISO-4113

Injection pump : VE6/10F2150L398 : 0 460 406 075 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 2.4L SD

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Setting value mm: 4.40...4.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 6.00...6.50

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250

Del. quantity cm3/ 1000s.: 29.50...30.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

1/min: 375

Del. quantity cm3/ 1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2325

Del. quantity cm3/ 1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 35.00...65.00

1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: -8.00..-12.00#

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1500

TD-travel

difference mm: -0.60..-0.80#

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing device characteristic:	Del. quantity cm3/: 10.0014.00 1600s.: (8.0016.00)
2nd speed	8th speed 1/min: 2275 Shutoff
mm: (4.806.20)	electromagnet Volt: 12
Shutoff - 42	Del. quantity cm3/: 14.5024.50
electromagnet Volt: 12	1000s.: (13.5025.50)
3rd speed	9th speed 1/min: 2150
mm: (3.905.30)	Shutoff - electromagnet Volt: 12
Shutoff	bel. quantity cm3/: 21.5023.50
electromagnet Volt: 12	1000\$:: (20.3024.70)
4th speed 1/min: 1000	10th speed 1/min: 1850
TD travel mm: 1.802.60	Shutoff
mm: (1.502.90)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 23.2025.80
electromagnet Volt: 12	1000\$.: (21.5027.50)
Supply-pump pressure characteristic:	12th speed 1/mir: 1250 Shutoff
outputy pump pressure thanacteristic.	electromagnet Volt: 12
1st speed 1/min: 750	Del. quyntity cm3/: 29.5030.50
Supply-pump -	1000s.: (27.8032.20)
pressure bar: 3.804.40	20th speed 1/min: 750
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
2nd speed 1/min: 1500	Del. quantity cm3/: 26.0029.00
Supply-pump - pressure bar: 6.006.60 -	1000s.: (24.5030.50)
Shutofi Shutofi	- Mech. shutoff:
electromagnet Volt: 12	recti. Strucott:
3rd speed 1/min: 2150	- Electr. shutoff:
Supply-pump	-
pressure bar: 7.908.50	- 1st speed
Shutoff	- Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
Overlow quantity at overflow valve:	Shutoff
over tow qualitary at over flow valve.	electromagnet volt: -
1st speed 1/min: 750	- Idle delivery:
Shutoff	-
electromagnet Volt: 12	- 1st speed
Overflow : 41.7083.40	- Shutoff
quantity cm3/10s: (27.8097.30)	electromagnet Volt: 12
2nd speed 1/min: 2150 - Shutoff -	- Del. quantity cm3/: 7.009.00
electromagnet Volt: 12	1000s.: (4.0012.00) Dispersion cm3/: 2.0
Overflow : 55.60138.90	1000s.: (3.0)
quantity cm3/10s: (41.70153.90)	2nd speed 1/min: 500
4	Shutoff
Delivery-quant. and breakaway char.:	electromagnet Volt: 12
•	- Del. quantity cm3/: 0.003.00
2nd speed 1/min: 2500	- 1000s.: (0.003.00)
2nd speed 1/min: 2500	- Load-dependent start of delivery
electromagnet Volt: 12	 Load-dependent start of delivery: Injqty.dif.measurement:
Del. quantity cm3/: 0.003.00	- ary a gry rout trillouddit cilicites
1000s.: (0.003.00)	1st speed
5th speed 1/min: 2325 -	Injaty. cm3/ : -6.58.5 '
Shutoff	difference 1000s.: -
electromagnet Volt: 12	-
Ţ.	

Shutoff

electromagnet Volt: 12 1/min: 1500 2nd speed

cm3/: 0.0...3.0 Z " Inj. aty.

difference 1000S.: -

TD-travel dif.measurement:

correttore anticipo iniezione (SV): 1st speed 1/min: 1500

: -1.1...-1.5 " TD-travel

difference mm: -

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pumb-

: -0.1...-0.3 ' pressure

difference bar: -

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...75.00 1000s.: (35.00...75.00)

2nd speed 1/min: 500

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 15.00...35.00

1000s.: (15.00...35.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00

1000s.: (35.00...65.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

: 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 K KF

mm: 6.3...6.7 MS mm: 1.3...1.7

mm: 31.5...33.5 Ya

mm: 51.2...63.4 Yb

Remarks:

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = \max , 5.0

ccm/1000 S.

Note inst. in remarks column

Test scheet : FIA Edition : 2.94 : 04.06.92 replaces Calibrating oil : ISO-4113

Injection pump : VE3/11F1250L163-1 Type number : 0 460 413 002

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

Engine : 8035.06.200 ''DI''

Power KW: 38 1/min: 1250 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Opening |

Pressure bar: 172.00...175.00

Perforated plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.2

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Speed

Setting value mm: 2.80...3.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1000

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 65.00...66.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/ 1000s.: 15.50...19.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000S.: (3.5)

Full-load speed regulation

1/min: 1350

Del. quantity cm3/

1000s.: 42.00...47.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 80.00...130.00

mind 1000S.: 80.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1250 2nd speed

mm: 4.40...5.20 TD travel

mm: (4.10...5.50)

Shutoff

electromagnet Volt: 12 1/min: 1000 3rd speed

TD travel mm: 2.80...3.20

mm: (2.30...3.70)

Shutoff	- Del. quantity cm3/: 63.5066.50
electromagnet Volt: 12	- 1000s.: (62.0068.00)
4th speed 1/min: 800	- 9th speed 1/min: 750
TD travel mm: 1.101.90	- Shutoff
mm: (0.802.20)	- electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 65.0066.00
electromagnet Volt: 12	- 1 000 S.: (62,50,68,50)
Supply-pump pressure characteristic:	- 10th speed 1/min: 500
Supply pulip pressure characteristic.	- Shutoff - electromagnet Volt: 12
1st speed 1/min: 500	- Del. quantity cm3/: 56.5059.50
Supply-pump	~ 1000s.: (55.0061.00)
pressure bar: 3.404.00	1.
Shutoff	- Mech. shutoff:
electromagnet Volt: 12	- Mech. Abstellung:
2nd speed 1/min: 1000	•
Supply-pump	- 1st speed 1/min: 1250
pressure bar: 5.76.300	 Del. quantity cm3/: 0.003.00
Shutoff	- 1000s.: (0.003.00)
electromagnet Volt: 12	- Shutoff
3rd speed 1/min: 1250	- electromagnet volt: 12
Supply-pump -	-
pressure bar: 6.807.40	- Electr. shutoff:
Shutoff -	4
electromagnet Volt: 12	- 1st speed 1/min: 400
Avantas and an area state of the state of th	Del. quantity cm3/: 0.003.00
Overlow quantity at overflow valve:	- 1000S.: (0.003.00)
1st speed 1/min: 500	- Shutoff
Shutoff	- electromagnet volt: -
electromagnet Volt: 12	Tollo dol funnua
Overflow : 41.7083.40	- Idle delivery:
quantity cm3/10s: (26.7098.40)	•
	. 1st speed 1/min. /OO
	- 1st speed 1/min: 400
2nd speed 1/min: 1250	- Shutoff
2nd speed 1/min: 1250	- Shutoff - electromagnet Volt: 12
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12	 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow: 55.60139.00	- Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 15.5019.50 - 1000s.: (13.5021.50)
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12	- Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 15.5019.50 - 1000s.: (13.5021.50) - Dispersion cm3/: 3.5
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	- Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 15.5019.50 - 1000s.: (13.5021.50) - Dispersion cm3/: 3.5 - 1000s.: (3.5)
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow: 55.60139.00	- Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 15.5019.50 - 1000s.: (13.5021.50) - Dispersion cm3/: 3.5 - 1000s.: (3.5) - 2nd speed 1/min: 475
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff	- Shutoff - electromagnet Volt: 12 - Del. quantity cm3/: 15.5019.50 - 1000s.: (13.5021.50) - Dispersion cm3/: 3.5 - 1000s.: (3.5) - 2nd speed 1/min: 475 - Shutoff
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000S.: (13.5021.50) Dispersion cm3/: 3.5 1000S.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000S.: (13.5021.50) Dispersion cm3/: 3.5 1000S.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.0016.00	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.0016.00 1000s.: (0.0020.00)	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.0016.00 1000s.: (0.0020.00) 5th speed 1/min: 1350	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: -
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.0016.00 1000s.: (0.0020.00) 5th speed 1/min: 1350 Shutoff	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) 2nd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 150
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.0016.00 1000s.: (0.0020.00) 5th speed 1/min: 1350 Shutoff electromagnet Volt: 12	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - Znd speed 1/min: 150 Shutoff
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) 4th speed 1/min: 1400 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.0016.00 1000s.: (0.0020.00) 5th speed 1/min: 1350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.0047.00	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - Znd speed 1/min: 150 Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00140.00
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - Znd speed 1/min: 150 Shutoff electromagnet Volt: 12
2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 2nd speed 1/min: 1450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.5019.50 1000s.: (13.5021.50) Dispersion cm3/: 3.5 1000s.: (3.5) Znd speed 1/min: 475 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Automatic starting fuel delivery: 1st speed 1/min: 250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.0050.00 1000s.: - 2nd speed 1/min: 150 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00140.00

Shutoff

electromagner Volt: 12 Del. quantity cm3/: 80.00...130.00

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

K mm: mm: 5.0...5.4 mm: 1.5...1.7 KF MS SVS max. mm: 4.7 Ya

mm: 37.9...39.9 mm: 44.0...49.0 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : STE Edition : 2.94 replaces : 12.06.92 Calibrating oil : ISO-4113

Injection pump : VE3/11F1200R263-1 Type number : 0 460 413 007

Customer Part-No. :

Customer-specific information Customer

Engine : WD311-85

Power KW: 41 Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000

Setting value mm: 5.80...6.20

Supply-pump pressure

1/min: 1000 Speed

Setting value bar: 6.20...6.80

Full-load del. w/out charge press.:

Sneed 1/min: 1000

Del. quantity cm3/

1000s.: 78.00...79.00 cm3/: 3.5

Dispersion 1000s.: (3.5)

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 11.00...15.00

Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1300

Del. quantity cm3/

1000s.: 17.00...23.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 84.00...134.00 mind 1000s.: 84.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200

TD travel mm: 6.90...7.70

mm: (6.60...8.00)

3rd speed 1/min: 1000

TD travel mm: 5.80...6.20

mm: (5.30...6.70)

1/min: 500 4th speed

mm: 1.60...2.40 mm: (1.30...2.70) TD travel

Supply-pump pressure characteristic:

1st speed 1/min: 1200

Supply-pump

pressure bar: 7.00...7.60

2nd speed 1/min: 1000

Supply-pump

pressure bar: 6.20...6.80

3rd speed 1/min: 500

Supply-pump

pressure bar: 4.30...4.90

Overlow quantity at overflow valve:

1st speed 1/min: 500 : 41.70...83.40 Overflow quantity cm3/10s: (26.70...89.40) 1/min: 1200 2nd speed : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: 2nd speed 1/min: 1350 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 1300 5th speed Del. quantity cm3/: 17.00...23.00 1000s.: (15.00...25.00) 3th speed 1/min: 1250 Del. quantity cm3/: 41.00...57.00 1000s.: (39.00...59.00) 9th speed 1/min: 1175 Del. quantity cm3/: 76.50...79.50 1000s.: (75.70...80.30) 1/min: 1000 12th speed Del. quyntity cm3/: 78.00...79.00 1000s.: (76.20...80.80) 1/min: 500 20th speed Del. quantity cm3/: 72.50...75.50 1000s.: (71.50...76.50) Mech. shutoff: Mech. Abstellung: 1/min: 1175 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1000s.: (9.00...17.00) cm3/: 3.5 Dispersion 1000s.: (3.5) 1/min: 330 2nd speed Del. quantity cm3/: 3.00...9.00 1000s.: (2.00...10.00) 1/min: 400 3rd speed Del. quantity cm3/: 0.00...2.60 1000s.: (0.00...2.60) Automatic starting fuel delivery: 1/min: 170 1st speed Del. quantity cm3/: 84.00...134.60 1000s.: -2nd speed 1/min: 270 Del. quantity cm3/: 37.00...73.00 1000s.: -

4th speed 1/min: 100
Del. quantity cm3/: 84.00...134.00
1000S.: Shutoff electromagnet:
Cut-in
min voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation mm: 3.2...3.4 mm: 5.6...6.0 mm: 1.3...1.7 KF MS SVS max. mm: 5.0 mm: 17.0...19.0 XK XL mm: 12.6...16.0 Ya mm: 37.2...39.2 Yb mm: 50.1...58.3 Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet Edition : 2.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE3/11F1200R263-4 Type number : 0 460 413 010

Customer Part-No. :

Customer-specific information Customer : STEYR

Engine : WD308.85 "DI"

Power KW: 35 1/min: 1200 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed

Setting value mm: 5.00...5.40

Supply-pump pressure

Speed 1/min: 1000 Setting value bar: 5.70...6.30

Full-load del. w/out charge press.:

Speed 1/min: 1000

Del. quantity cm3/

1000s.: 64.00...65.00

Dispersion cm3/: 3.51000s.: (3.5)

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 17.00...21.00

Del. quantity cm3/: 3.5 1000s : (3.5)

Full-load speed regulation

1/min: 1250 Speed

Del. quantity cm3/ 1000s.: 31.00...39.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 70.00...120.00

1000s.: 70.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200

mm: 6.70...7.50 TD travel mm: (6.40...7.80)

3rd speed 1/min: 1000

mm: 5.00...5.40 mm: (4.50...5.90) TD travel

1/min: 500 4th speed

mm: 0.50...1.30 TD travel mm: (0.20...1.60)

Supply-pump pressure characteristic:

1/min: 1200 1st speed

Supply-pump

bar: 6.50...7.10 pressure

1/min: 1000 2nd speed

Supply-pump

pressure bar: 5.70...6.30

1/min: 500 3rd speed

Supply-pump

bar: 3.90...4.50 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 500 Overflow : 41.70...83.40 quantity cm3/10s: (26.70...89.40) 1/min: 1175 2nd speed : 55.60...139.00 cm3/10s: (40.60...154.00) Overflow quantity Delivery-quant. and breakaway char.: KF MS 2nd speed 1/min: 1350 Del. quantity cm3/: 0.00...3.00 Ya 1000s.: (0.00...3.00) Yb 5th speed 1/min: 1250
Del. quantity cm3/: 31.00...39.00
1000s.: (29.00...41.00)
8th speed 1/min: 1220 Del. quantity cm3/: 45.00...65.00 1000s.: -9th speed 1/min: 1175 Del. quantity cm3/: 61.00...64.00 1000s.: (59.70...65.30) 1/min: 1000 12th speed Del. quyntity cm3/: 64.00...65.00 1000S.: (62.00...67.00) 20th speed 1/min: 500 Del. quantity cm3/: 57.50...60.50 1000S.: (56.50...61.50) Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1175 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Idle delivery: 1000s.: (15.00...23.00) cm3/: 3.5 Dispersion 1000s.: (3.5) 1/min: 330 2nd speed Del. quantity cm3/: 9.00...15.00 1000s.: (8.00...16.00) 3rd speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 170 Del. quantity cm3/: 70.00...120.00 1000s.: -2nd speed 1/min: 270 Del. quantity cm3/: 25.00...55.00 1000s.: -

4th speed 1/min: 100
Del. quantity cm3/: 70.00...120.00
1000S.: -

Mounting and assembly dimensions:

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : FIA : 02.94 Edition replaces : 12.06.92 Calibrating oil : ISO-4113

Injection pump : VE4/11F1350R257 : 0 460 414 039 Type number

Customer Part-No. :

Customer—specific information Customer : IVECO-FIAT

Enaine : 8040.25.200+220

TEST BENCH REQUIREMENTS

Overflow rastricti: 1 463 456 303

Calibrating-oil •c return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina

bar: 172.00...175.00 Pressure

Perforated-plate

diameter mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.4

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 3.80...4.20 Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed Charge press hPa: 1000

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 800 Charge press. hPa: 1000 Del. quantity cm3/ 1000s.: 92.50...93.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/ 1000s.: 67.50...70.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 22.00...26.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 3.5 1000S.: (4.0)

Full-load speed regulation

1/min: 1500 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 34.00...40.00

Shutoff

electromagnet Voit: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 90.00...140.00 mind 1000s.: 90.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device chara	cteristic: +	1nd speed 1/min:	
	+	Charge-air pressure	
2nd speed 1/min:		point hPa:	250
	1000 +	LDA-stroke mm:	4.4
	6.307.10	Shutoff	
	(6.007.40)	electromagnet Volt:	24
Shutoff	+	Del. quantity cm3/:	
electromagnet Volt:	24 🗼		(75.5083.50)
3rd speed 1/min:	1000 +	2nd speed 1/min:	
Charge press hPa:	1000 🗼	Charge press. hPa:	
TD travel mm:	3.804.20	Shutoff	
	(3.304.70)	electromagnet Volt:	24
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt:	24		(0.003.00)
4th speed 1/min:		5th speed 1/min:	
	1000	Charge press. hPa:	
TD travel mm:	1.702.50	Shutoff	1000
	(1.402.80)	electromagnet Volt:	2/
Shutoff	I	Del. quantity cm3/:	
electromagnet Volt:	24 I		(31.0043.00)
cteeti dinagree vott.	T		
Simply-pimp process	a charactoristic.	9th speed 1/min:	
Supply-pump pressure	e characteristic:	Charge press. hPa:	1000
1st speed 1/min:	5m T	Shutoff	21
•		electromagnet Volt:	24
Charge press. hPa:	1000 †	Del. quantity cm3/:	
Supply-pump	7 (2)		(87.0094.00)
	3.604.20	12th speed 1/min:	
Shutoff	+	Charge press. hPa:	1000
electromagnet Volt:		Shutoff	
3rd speed 1/min:		electromagnet Volt:	
	1000 +	Del. quyntity cm3/:	
Supply-pump	+	1000s.:	(89.5096.50)
	5.706.30	18th speed 1/min:	500
Shutoff	+	Charge press. hPa:	
electromagnet Volt:	24 +	Shutoff	
4th speed 1/min:	1350	electromagnet Volt:	24
Charge press. hPa:	1000 +	Del. quantity cm3/:	
Supply-pump	1		(65.5072.50)
	7.007.60	20th speed 1/min:	500
Shutoff	1	Charge press. hPa:	1000
electromagnet Volt:	24	Shutoff	.000
, , , , , , , , , , , , , , , , , , ,	1	electromagnet Volt:	24
Overlow quantity at	overflow valve:	Del. quantity cm3/:	
qu	1		(86.5092.50)
1st speed 1/min:	500 1	1000	(00.50/2.50)
Charge press. hPa:		Mech. shutoff:	
Shutoff	I	Mech. Abstellung:	
electromagnet Volt:	24 I	recii. Abstetturg.	
	41.7086.10	1st speed 1/min:	1750
	(26.70101.10)	Charge press. hPa:	
2nd speed 1/min:			
Charge press. hPa:		Del. quantity cm3/:	(0.003.00)
Shutoff	7000 T		(0.005.00)
electromagnet Volt:	7/	Shutoff	27.
		electromagnet volt:	24
quantity cm3/10s:	55.60139.00	Manha about ff.	
qualitity CMD/1US:	(40.00154.00)	Electr. shutoff:	
Not discontinuous and	handen m	4-4	750
Delivery-quant. and	breakaway char.:	1st speed 1/min:	
	†	Del. quantity cm3/:	
	+	TUUUS.:	(0.003.00)

Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 24

Del. quantity cm3/: 22.00...26.00

1000s.: (19.00...29.00)

Dispersion cm3/: 3.5 1000s.: (4.0) 1/min: 430 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 1/min: 400 3rd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 3.00...13.00 1000s.: -Automatic starting fuel delivery: 1/min: 150 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 40.00...60.00 1000s.: (40.00...60.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: -KF mm: 5.1...5.5 MS mm: 1.2...1.6 mm: 5.3 SVS max. LDA stroke mm: 4.4 mm: 17.0...19.0 XK mm: 14.2...17.6 XL

mm: 37.9...39.9

Ya

G06

Yb mm: 45.4...50.7

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : 02.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1500R266 : 0 460 414 041 Type number Customer Part-No.: 2643H061

Customer-specific information Customer : PERKINS

Engine : 500 HYDROVAN

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

Prestroke mm: 0.5

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1,47

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 600

Del. quantity cm3/

1000s.: 33.00...34.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.5 1000s.: (3.5)

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 11.00...15.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 1700 Speed

Del. quantity cm3/

1000s.: 7.00...13.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 70.00...100.00

1000s.: 70.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1500

mm: 3.70...4.50 TD travel

mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 1100 TD travel mm: 2.40...2.80 mm: (1.90...3.30)

Shutoff

electromagnet Volt: 12 1/min: 700 4th speed

G07

TD travel mm: 0.40...1.20 Shutoff mm: (0.10...1.50) Shutoff electromagnet Volt: 12 1/min: 1350 5th speed TD travel mm: 3.40...4.20 Shutoff mm: (3.10...4.50) electromagnet Volt: 12 Del. quyntity cm3/: 33.00...34.00 1000s.: (31.00...36.00) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Mech. shutoff: 1/min: 700 1st speed Electr. shutoff: Supply-pump 1st speed 1/min: 350
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00) bar: 3.50...4.10 pressure Shutoff electromagnet Volt: 12 1/min: 1100 2nd speed Shutoff Supply-pump electromagnet volt: bar: 4.90...5.50 pressure Shutoff Idle delivery: electromagnet Volt: 12 1/min: 1500 3rd speed 1/min: 350 1st speed Supply-pump Shutoff electromagnet Volt: 12
Del. quantity cm3/: 11.00...15.00
1000s.: (9.00...17.00)
Dispersion cm3/: 3.0
1000s.: (3.0) bar: 6.40...7.00 pressure Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1/min: 400 2nd speed 1st speed 1/min: 600 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.00...9.00 electromagnet Volt: 12 1000s.: (1.50...10.50) Overflow | : 41.70...83.40 cm3/10s: (26.70...98.40) quantity 1/min: 460 3rd speed 2nd speed 1/min: 1500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow quantity cm3/10s: (40.60...154.00) Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 300 Shutoff 2nd speed 1/min: 1750 electromagnet Volt: 12 Del. quantity cm3/: 36.00...52.00 1000s.: (36.00...52.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 5th speed 1/min: 1700 2nd speed 1/min: 400 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 7.00...13.00 Del. quantity cm3/: 24.50...39.50 1000s.: (24.50...39.50) 1000s.: (5.00...15.00) 1/min: 1500 9th speed 1/min: 100 4th speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...100.00 1000s.: (70.00...100.00) electromagnet Volt: 12 Del. quantity cm3/: 54.50...57.50 1000s.: (53.00...59.00) 10th speed 1/min: 1100

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: -KF mm: KOT mm: 1.5...1.7 mm: 3.5 mm: 28.5...30.5 mm: 59.7...70.1 MS1 SVS max. Ya

Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : KHD Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1400R39-2 Type number : 0 460 414 063

Customer Part-No. :

Customer—specific information Customer : DEUT7

Engine : E 4 L913V

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000

Setting value mm: 3.60...4.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1000

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1000 Speed

Del. quantity cm3/

1**000s.: 60.5...63.**5

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 1500

Del. quantity cm3/

1000s.: 32.00...41.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...105.00

mind 1000s.: 75.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1400

TD travel mm: 5.40...6.20 mm: (5.10...6.50)

Shutoff

electromagnet Volt: 12 1/min: 1000 3rd speed

mm: 3.60...4.00 TD travel mm: (3.10...4.50)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 500

mm: 0.10...0.90 TD travel

mm: (0.00...1.20)

Shutoff

electromagnet Volt: 12

G10

		6th speed 1/min	: 50C
Supply-pump pressure	characteristic:	Shutoff	. 12
1st speed 1/min:	1400	electromagnet Volt Del. quantity cm3/	: 56.0061.00
Supply-pump	(00 7.50	1000S.	: (55. 00 62.00)
pressure bar: Shutoff	6.907.50	Mech. shutoff:	
electromagnet Volt:			
2nd speed 1/min: Supply-pump	1000	Electr. shutoff:	
	5.706.30	1st speed 1/min	· 350
Shutoff	+	Del. quantity cm3/	: 0.003.0 0
electromagnet Volt:			(0.003. 00)
3rd speed 1/min:	500 †	Shutoff	40
Supply-pump	/ 20 / 20	electromagnet volt	: 12
Shutoff	4.204.80	Idle delivery:	
electromagnet Volt:	12 +	·	
	4	1st speed 1/min	: 350
Overlow quantity at a	overflow valve:	Shutoff	
•	1	electromagnet Volt	: 12
1st speed 1/min:	500 1	Del. quantity cm3/	
Shutoff	 	1000s.	(11.019.0)
electromagnet Volt:	12 🗼	Dispersion cm3/	
	41.7083.40	1000\$.	
quantity cm3/10s:		3rd speed 1/min	
2nd speed 1/min:	2000	Del. quantity cm3/	
Shutoff	1.	10013	(4.0012.00)
electromagnet Volt:	12 I	4th speed 1/min	
	55.60139.00	Shutoff	. ,00
quantity cm3/10s:		electromagnet Volt	. 12
quarterty chist tos.	T		
Delivery-quant. and I	hneakauay chan	Del. quantity cm3/ 1000s.	
becivery quart. and i	T	100052.	-
	I	Automatic starting	fuel delivery:
1nd speed 1/min:	1670	Addition Starting	ruet detivery.
Shutoff	I		
electromagnet Volt:	12 I	2nd speed 1/min:	220
Del. quantity cm3/: (Shutoff	. 220
1000S.:	7		. 40
2nd speed 1/min:		electromagnet Volt	
Shutoff	1380	Del. quantity cm3/:	20.0000.00
electromagnet Volt:	12	1000s.:	
Del. quantity cm3/: 1		4th speed 1/min:	100
10005.:			100
3rd speed 1/min:		Shutoff	. 40
Shutoff	1300	electromagnet Volt:	
	12	Del. quantity cm3/:	
electromagnet Volt:	72 00 // 00	1000s.:	-
Del. quantity cm3/:	32.0041.00	01-11-55	
10005.:		Shutoff electromagn	et:
4th speed 1/min:	1400 +	•	
Shutoff	12 †	Cut-in	40.0
electromagnet Volt:			10.0
Del. quantity cm3/:		Rated voltage	12.0
	(52.0058.00)		
5th speed 1/min:	1000 +	Mounting and assemb	oly dimensions:
Shutoff	42 +		
electromagnet Volt:		Designation	_
Del. quantity cm3/: 6			3.23.4
1000s.:	(59.5064.50)	KF mm:	5.05.4

MS mm: 1.1...1.5 Ya mm: 35.2...37.2 Yb mm: 49.0...57.0

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PER Edition : 02.94 replaces : 07.10.91 Calibrating oil : ISO-4113

Injection pump : VE4/11F1500R266-3 Type number : 0 460 414 090

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : 500 GR DI.T/C

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery

mm: 0.5 Prestroke

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. w/cut charge press.:

1/min: 1200

Del. quantity cm3/

1000s.: 61.50...62.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3,5 1000S.: (3,5)

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1**00**0s.: 11.00...15.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (3.0)

Full-load speed regulation

1/min: 1600 Speed

Del. quantity cm3/

1000s.: 12.00...18.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 70.00...110.00

1000s.: 70.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1500 2nd speed

TD travel mm: 3.70...4.50 mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12 1/min: 1100 3rd speed

mm: 2.40...2.80 mm: (1.90...3.30) TD travel

Shutoff

electromagnet Volt: 12 4th speed 1/min: 700

mm: 0.40...1.20 TD travel

mm: (0.10...1.50)

Shutoff electromagnet Volt: 12
5th speed 1/min: 1350
TD travel mm: 3.40...4.20 Del. quyntity cm3/: 61.50...62.50 1000s.: (59.50...64.50) 1/min: 600 15th speed Shutoff mm: (3.10...4.50) electromagnet Volt: 12 Del. quaritity cm3/: 27.50...29.50 1000s.: (25.50...31.50) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Mech. shutoff: 1st speed 1/min: 700 Electr. shutoff: Supply-pump bar: 3.50...4.10 pressure 1st speed 1/min: 350 Shutoff Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 2nd speed 1/min: 1100 Shutoff Supply-pump electromagnet volt: bar: 4.90...5.50 pressure Shutoff Idle delivery: electromagnet Volt: 12 3rd speed 1/min: 1500 1st speed 1/min: 350 Supply-pump Shutcff bar: 6.40...7.00 pressure electromagnet Volt: 12
Del. quantity cm3/: 11.00...15.00
1000s.: (9.00...17.00)
Dispersion cm3/: 3.0 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1000s.: (3.0) 1/min: 400 2nd speed 1/min: 1200 1st speed Shutoff Shutoff electromagnet Volt: 12
Del. quantity cm3/: 3.00...9.00
1000s.: (1.50...10.50)
3rd speed 1/min: 460 electromagnet Volt: 12 : 41.70...83.40 cm3/10s: (26.70...98.40) quantity 1/min: 1500 2nd speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) electromagnet Volt: 12 : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity Automatic starting fuel delivery: Delivery-quant. and breakaway char.: 1st speed 1/min: 300 Shutoff 3rd speed 1/min: 1650 electromagnet Volt: 12 Del. quantity cm3/: 35.00...65.00 1000s.: (35.00...65.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 2nd speed 1/min: 450 1/min: 1600 5th speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 24.00...40.00 1000s.: (24.00...40.00) 4th speed 1/min: 100 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 70.00...110.00 1000s.: (70.00...110.00) Shutoff Shutoff electromagnet: electromagnet Volt: 12

Cut-in

Rated voltage : 10.0 : 12.0

Mounting and assembly dimensions:

Designation

K mn: -KF mm: KOT mm: 0.7...1.1 mm: 28.5...30.5 mn: 62.4...72.6 MS Ya YŁ.

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0
ccm/1000 S.

Note inst. in remarks column

Test scheet : SOF Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R444 : 0 460 414 091 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

: 8140.47.2785 "DI" Engine

KW: 85 Power 1/min: 1900 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Charge press. hPa: 1000 Setting value mm: 2.00...2.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 1000

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1750 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 58.00...59.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550

Del. quantity cm3/ 1000s.: 25.00...26.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

1/min: 2100 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...90.00

1000s.: 40.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

3rd speed 1/min: 1900 1/min: 1250 Speed Charge press. hPa: 1000 hPa: 1000 Charge press Supply-pump Inj. -qty. cm3/bar: 7.60...8.20 pressure difference 1000s.: -27.0...-35.0 # Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 TD-travel dif.measurement Overlow quantity at overflow valve: correttore anticipo iniezione (SV) 1. Speed 1/min: 1250 1st speed 1/min: 800 Charge press hea: 1000 Charge press. hPa: 1000 TD-travel Shutoff difference mm: -0.6...-0.9 # electromagnet Volt: 12 : **75.00...**119.50 Shutoff Overflow cm3/10s: (60.00...134.50) 1/min: 1900 electromagnet Volt: 12 quantity 2nd speed Inspection pump test specifications Charge press. hPa: 1000 Test specifications in parentheses Shutoff electromagnet Volt: 12 Timing-device characteristic: : 97.30...180.70 Overflow cm3/10s: (82.30...195.70) quantity 1/min: 1500 2nd speed hPa: 1000 Charge press Delivery-quant. and breakaway char.: TD travel mm: 3.60...4.40 mm: (3.30...4.70) Shutoff 1nd speed 1/min: 800 electromagnet Volt: 12 Charge-air pressure-setting 3rd speed 1/min: 1250 Charge press hPa: 1000 TD travel mm: 2.00...2.40 mm: (1.50...2.90) point hPa: 400 LDA-stroke mm: 6.7 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...44.00 Shutoff electromagnet Volt: 12 1000s.: (39.50...47.50) 1/min: 1000 4th speed 1/min: 2250 2nd speed Charge press hPa: 1000 Charge press. hPa: 1000 mm: 0.20...1.00 TD travel Shutoff mm: (0.00...1.40) Shutoff electromagnet Volt: 12 5th speed 1/min: 1900 Charge press. hPa: 1000 Charge press. hPa: 1000 mm: 4.50...5.30 TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 22.00...28.00
1000S.: (20.50...29.50)
8th speed 1/min: 2000
Charge press. hPa: 1000
Shutoff mm: (4.20...5.60) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: 1st speed 1/min: 800 electromagnet Volt: 12 Del. quantity cm3/: 41.00...49.00 1000s.: (39.00...51.00) Charge press. hPa: 1000 Supply-pump pressure bar: 3.60...4.20 9th speed 1/min: 1900 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff 2nd speed 1/min: 1250 electromagnet Volt: 12 Del. quantity cm3/: 58.00...63.00 1000s.: (57.00...64.00) 12th speed 1/min: 1750 Charge press. hPa: 1000 Supply-pump pressure bar: 5.30...5.90 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12

Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quyntity cm3/: 58.0059.00	•
1000s.: (55.0062.00)	TD-travel dif.measurement:
15th speed 1/min: 1250	correttore anticipo iniezione (SV):
Charge press. hPa: 1000	1st speed 1/min: 1250
Shutoff I	
	Charge press. hPa: 1000
electromagnet Volt: 12	TD-travel : -0.601.40'
Del. quantity cm3/: 52.5057.50	difference mm: -
1000s.: (51.0059.00)	Shutoff
18th speed 1/min: 550 +	electromagnet Volt: 12
Charge press. hPa: -	
Shutoff	SP pressdif.measurement:
electromagnet Volt: 12	pompa di mandata (FP):
Del. quantity cm3/: 25.0026.00	1st speed 1/min: 1250
10005.: (22.0029.00)	Charge press. hPa: 1000
20th speed 1/min: 800 +	Supply pump-
Charge press. hPa: 1000 +	pressure : -0.100.30"
Shutoff +	difference bar: -
electromagnet Volt: 12	Shutoff
Del. quantity cm3/: 49.5058.50	
1600s.: (48.5059.50)	electromagnet Volt: 12
1000.5.: (46.5059.50)	
†	Automatic starting fuel delivery:
Mech. shutoff:	
 	1st speed 1/min: 200
Electr. shutoff:	Shutoff
1	electromagnet Volt: 12
1st speed 1/min: 325	0 0 10 00 00 00 00 00 00 00 00 00 00 00
	Del. quantity cm3/: 55.00105.00
Del. quantity cm3/: 0.003.00	1000s.: (55.00105.00)
1000s.: (0.003.00)	
Shutoff +	2nd speed 1/min: 500
electromagnet volt: -	Shutoff
CICLIONIDA CI VOLLA	
<u> </u>	electromagnet Volt: 12
Idle delivery:	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery:	electromagnet Volt: 12
Idle delivery: 1st speed 1/min: 325	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00)
Idle delivery:	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00)
Idle delivery: 1st speed 1/min: 325 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00)	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12
Idle delivery: 1st speed	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00 1000S.: (40.0090.00) Shutoff electromagnet:
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0 1000s.: (6.5) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00 1000S.: (40.0090.00) Shutoff electromagnet: Cut-in
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0 1000s.: (6.5) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0 1000s.: (6.5) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00 1000S.: (40.0090.00) Shutoff electromagnet: Cut-in
Idle delivery: 1st speed	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0 1000s.: (6.5) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000s.: (8.0016.00) Dispersion cm3/: 6.0 1000s.: (6.5) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Load-dependent start of delivery:	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00 1000S.: (14.0030.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.0090.00 1000S.: (40.0090.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions:
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00 1000S.: (8.0016.00) Dispersion cm3/: 6.0 1000S.: (6.5) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Load-dependent start of delivery: Injqty.dif.measurement: 1st speed 1/min: 1250 Charge press. hPa: 1000 Injqty. cm3/ : -28.030.0" difference 1000S.: -	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00
Idle delivery: 1st speed 1/min: 325 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.0014.00	electromagnet Volt: 12 Del. quantity cm3/: 14.0030.00

G18

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

Note inst. in remarks column

Test scheet : ROVER Edition : 02.94

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R462 Type number : 0 460 414 093

Customer Part-No. :

Customer-specific information Customer : LANDROVER

Engine : GEMINI EGR "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp. °C

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 116

Opening

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery
Prestroke mm: (from BDC): -

Start of delivery block Piston stroke mm: 1.40

Outlet : C

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600 Charge press, hPa: 1000

Setting value mm: 3.30...3.70

Shutoff

electromagnet Volt: 12

Supply-kimp pressure

Speed 1/min: 1600 Charge press hPa: 1000

Setting value bar: 6.10...6.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 63.10...64.10

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 34.50...35.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350

Del. quantity_cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 4.0 1000S.: (4.5)

Full-load speed regulation

Speed 1/min: 2100 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 52.30...58.30

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 80.00...130.00

mind 1000s.: 80.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1nd speed 1/min: 800 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 1/min: 2000 hPa: 1000 mm: 5.90...6.70 mm: (5.40...7.20) 2nd speed Charge press TD travel Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1600 Charge press hPa: 1000 Charge press. hPa: 1000 mm: 3.30...3.70 Shutoff TD travel mm: (2.70...4.30) Shutoff electromagnet Volt: 12 4th speed 1/min: 1200 Charge press hPa: 1000 Charge press. hPa: 1000 mm: 0.00...1.60 TD travel Shutoff mm: (0.00...1.70) electromagnet Volt: 12 Del. quantity cm3/: 5.50...15.50 1000s.: (4.50...16.50) Shutoff electromagnet Volt: 12 1/min: 2100 5th speed Charge press. hPa: 1000 Shutoff Supply-pump pressure characteristic: 1st speed 1/min: 2000 Charge press. hPa: 1000 Supply-pump pressure bar: 7.40...8.00 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 2nd speed 1/min: 1600 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.10...64.10 1000S.: (58.90...65.30) 10th speed 1/min: 1800 Charge press. hPa: 1000 Shutoff Charge press. hPa: 1000 Supply-pump pressure bar: 6.10...6.70 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1200 Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 60.50...63.50 1000s.: (58.50...65.50) Supply-pump bar: 5.00...5.60 1/min: 1400 pressure 12th speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 63.10...64.10 1000s.: (60.80...66.40) Overlow quantity at overflow valve: 1/min: 800 1/min: 800 1st speed 16th speed Charge press. hPa: 1000 Shutoff Charge press. hPa: -Shutoff electromagnet volt: 12 Del. quantity cm3/: 39.50...43.50 1000H.: (38.00...45.00) electromagnet Volt: 12 : 55.60...100.08 Overflow cm3/10s: (40.60...115.08) quantity 1/min: 2000 2nd speed 1/min: 500 18th speed Charge press. hPa: 1000 Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.50...35.50 1000s.: (31.80...38.20) electromagnet Volt: 12 : 83.40...166.80 Overflow quantity cm3/10s: (68.40...181.80) 20th speed 1/min: 800

Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 60.90...65.90 1**000**S.: (59.40...67.40) Mech. shutoff: Electr. shutoff: 1/min: 300 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...14.00 1000s.: (7.00...17.00) cm3/: 4.0 Dispersion 1000S.: (4.5) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) gaz d'échappement-ARF) mm: 12.0 Spacing 1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.50...39.50 1000s.: (34.50...42.50) Automatic starting fuel delivery: 1/min: 150 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 82.00...132.00 1000s.: (80.00...134.00) 2nd speed 1/min: 350 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00) 1/min: 100 4th speed

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 80.00...130.00 1000s.: (80.00...130.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.4...3.6 KF mm: KOT mm: 1.1...1.5 mm: 2.9 MS1 SVS max. LDA stroke mm: 7.0 mm: 42.3...46.3 Ya Yb mm: 49.0...50.0 Ajustement Potentiometer: Supply voltage pot. volt: 5.0 Output volt volt: 2.5 pot. Remarks: Operate control lever after each manifold-pressure compensator pressure change. Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control Lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PER Edition : 02.94

replaces

Calibrating oil : ISO-4113

: VE4/11F2250R482 Injection pump Type number : 0 460 414 094

Customer Part-No. :

Customer-specific information Customer : PERKINS

: T 4.20 (V) ARF Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mn: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 800

Setting value mm: 4.00...4.40

AFB/AFB

valve **Volt: 12**

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 800

Setting value bar: 7.30...7.90

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 800

Del. quantity cm3/

1000s.: 66.50...67.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 625 Speed

Del. quantity cm3/

1000s.: 29.50...30.50

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0

Low-idle speed regulation

1/min: 400

Del. quantity cm3/ 1000S.: 9.00...11.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.0 1000s.: (4.0)

Full-load speed regulation

Speed 1/min: 2525 Charge press hPa: 800

Del. quantity cm3/ 1000s.: 23.50...25.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min:	100	L	KSB/AFB	
Del. quantity cm3/:		T.	valve Volt:	12
mind 1000s.:	60.00	T	Shutoff	12
KSB/AFB	60.60	Ť		10
	10	T	electromagnet Volt:	
	12	†	2nd speed 1/min:	
Shutoff	43	†	Charge press. hPa:	800
electromagnet Volt:	12	†	Supply-pump	2 70 1 20
•		†		7.307.90
Inspection pump tes		+	KSB/AFB	
Test specifications	in parentheses	+	valve Volt:	12
		+	Shutoff	
Timing-device chara	cteristic:	+	electromagnet Volt:	
		+	3rd speed 1/min:	2000
2nd speed 1/min:		+	Charge press. hPa:	800
Charge press hPa:	800	+	Supply-pump	
TD travel mm:	6.106.90	1	pressure bar:	8.308.90
mm:	(5,807.20)	1	KSB/AFB	
KSB/AFB		1	valve Volt:	12
valve Volt:	12	1	Shutoff	•••
Shutoff		1	electromagnet Volt:	12
electromagnet Volt:	12	1	ctever anagrice voter	' L
3rd speed 1/min:	1500	1	Overlow quantity at	overflow valve.
	800	1	over con quarterey at	over from varve.
TD travel mi:		I	1st speed 1/min:	625
	(3.604.80)	I	Charge press. hPa:	=
KSB/AFB	(3.00.7.4.00)	T	KSB/AFB	_
valve Volt:	12	T	valve Volt:	12
Shutoff	1.2	T		12
	10	†	Shutoff	40
electromagnet Volt:		T	electromagnet Volt:	75 00 440 50
4th speed 1/min:		†		75.00119.50
	800	+	quantity cm3/10s:	(60.00134.50)
	1.902.70	†	2nd speed 1/min:	
	(1.603.00)	+	Charge press. hPa:	800
KSB/AFB	45	+	KSB/AFB	• •
valve Volt:	12	+	valve Volt:	12
Shutoff	40	+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	
8th speed 1/min:		+		97.30180.70
Charge press. hPa:	800	+	quantity cm3/10s:	(82.30195.70)
TD travel mm:	1.503.50 B	+		
	(1.303.70)	+	Delivery quant. and	breakaway char.:
KSB/AFB		+	•	•
valve Volt:	-	+		
Shutoff		+	1nd speed 1/min:	1000
electromagnet Volt:		+	Charge-air pressure	-setting
9th speed 1/min:	500	+	point hPa:	
Charge press. hPa:	800	+		7.1
	2.102.30 A	+	KSB/AFB	
	(1.403.00)	1	valve Volt:	12
KSB/AFB		+	Shutoff	
valve Volt:		1	electromagnet Volt:	12
Shutoff	·	1	Del quantity cm3/:	58 50 59 50
electromagnet Volt:	12	1	Del. quantity cm3/: 1000s.:	(55 50 62 50)
cers. Sing ice voter		L	3rd speed 1/min:	2625
Supply-pump pressur	e characteristic:	Ι	Charge press. hPa:	
cohies build by 63301		I	KSB/AFB	000
1st speed 1/min:	1000	Ι	valve Volt:	12
Charge press. hPa:		T	Shutoff	16
Supply-pump	000	T		12
	6.006.60	T	electromagnet Volt:	16
picobule Dali:	0.00,0.00	T		

Del. quantity cm3/: 0.00...10.00 1090s.: (0.00...10.00) 5th speed 1/min: 2525 Mech. shutoff: Electr. shutoff: Charge press. hPa: 800 KSB/AFB 1st speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 valve Volt: 12 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Shutoff Del. quantity cm3/: 23.50...25.50 1000S.: (20.50...28.50) 9th speed 1/min: 2250 Charge press. hPa: 800 electromagnet volt: -KSB/AFB valve Volt: 12 KSB/AFB Idle delivery: valve Volt: 12 Shutoff 1/min: 400 1st speed electromagnet Volt: 12 KSB/AFB Del. quantity cm3/: 70.00...74.00 valve Volt: 12 1000s.: (69.00...75.00) Shutoff 12th speed 1/min: 1250 electromagnet Volt: 12 Del. quantity cm3/: 9.00...11.00 1000s.: (6.00...14.00) Dispersion cm3/: 3.0 Charge press. hPa: 800 KSB/AFB valve Volt: 12 Shutoff 1000s.: (4.0) electromagner Volt: 12 Del. quyntity cm3/: 66.50...67.50 1000s.: (64.50...69.50) 2nd speed 1/min: 500 KSB/AFB valve Volt: 12 1/min: 625 18th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...5.00 1000s.: (0.00...5.00) Charge press. hPa: -KSB/AFB valve Volt: 12 Shutoff Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) Charge press. hPa: 800 gaz d'échappement-ARF) KSB/AFB Spacing mm: 12.0 valve Volt: 12 Shutoff 1st speed 1/min: 800 electromagnet Volt: 12 Charge press. hPa: 800 Del. quantity cm3/: 69.50...72.50 KSB/AFB 1000s.: (67.50...74.50) valve Volt: 12 1/min: 500 21th speed Shutoff Charge press. hPa: electromagnet Volt: 12 Del. quantity cm3/: 17.50...18.50 KSB/AFB valve Volt: 12 1000s.: (15.50...20.50) Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: Del. quantity cm3/: 27.50...32.50 1000s.: (26.00...34.00) 2nd speed 1/min: 350 KSB/AFB Delivery-quant. and breakaway char.: valve Volt: 12 Shutoff Inj.-qty.values, temp.-compensated electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 temperatura 1000s.: (20.00...40.00) Del. quantity cm3/: 0.00...10.00 1000s.: (0.00...10.00) 4th speed 1/min: 100

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...90.00 1000s.: (60.00...90.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.3...3.5

KF mm: KOT

LDA stroke

mm: 7.1 mm: 37.0...39.0 mm: 55.5...66.5 Ya Yb

Ajustement Potentiometer:

Supply voltage

pot. volt: 5.0

Output volt

pot. volt: 2.43

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

A = KSB adjustment point B = KSB curve point

Note inst. in remarks column

Test scheet : SOF Edition : 02.94

replaces

: ISO-4113 Calibrating oil

Injection pump : VE4/11F1900R494 : 0 460 414 097 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

Engine : 8140.47.2585 "DI"

Power KW: 85 1/min: 1900 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Lenath

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Charge press. hPa: 1000 Setting value mm: 2.00...2.40

Shirtoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 58.00...59.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000\$.: (4.5)

Full-load del. w/out charge press.:

1/min: 550 Speed

Del. quantity cm3/

1000s.: 25.00...26.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

1/min: 2100 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 22.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...90.00

1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

3rd speed 1/min: 1900 1/min: 1250 hPa: 1000 Speed Charge press. hFa: 1000 Charge press Supply-pump Inj.-qty. cm3/pressure bar: 7.60...8.20 difference 1000s.: -27.0...-35.0 # Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 TD-travel dif.measurement Overlow quantity at overflow valve: correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 1st speed 1/min: 800 Charge press hPa: 1000 Charge press. hPa: 1000 TD-travel Shutoff difference mm: -0.7...-0.9 # electromagnet Volt: 12 Shutoff Overflow : 75.00...119.50 quantity cm3/10s: (60.00...134.50) 2nd speed 1/min: 1900 electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 : 97.30...180.70 Timing-device characteristic: Overflow quantity cm3/10s: (82.30...195.70) 1/min: 1500 2nd speed Charge press hPa: 1000 Delivery-quant. and breakaway char.: TD travel mm: 3.60...4.40 mm: (3.30...4.70) Shutoff 1nd speed 1/min: 800 electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 2.00...2.40 Charge-air pressure-setting point hPa: 400 LDA-stroke mm: 7.1 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 43.00...44.00
1000s.: (39.50...47.50) mm: (1.50...2.90) Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 1/min: 2250 2nd speed Charge press hPa: 1000 Charge press. hPa: 1000 mm: 0.20...1.00 TD travel Shutoff mm: (0.00...1.30)Shutoff electromagnet Volt: 12 5th speed 1/min: 1900 Charge press. hPa: 1000 Charge press. hPa: 1000 mm: 4.50...5.30 TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 22.00...28.00
1000S.: (20.50...29.50)
8th speed 1/min: 2000 mm: (4.20...5.60) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 41.00...49.00 1000S.: (39.00...51.00) 1st speed 1/min: 800 Charge press. hPa: 1000 Supply-pump pressure bar: 3.60...4.20 9th speed 1/min: 1900 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12 2nd speed 1/min: 1250 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 58.00...63.00 1000s.: (57.00...64.00) 12th speed 1/min: 1750 Charge press. hPa: 1000 Supply-pump pressure bar: 5.30...5.90 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12

Shutoff -	
electromagnet Volt: 12	difference 1000S.: -
Del. quyntity cm3/: 58.0059.00	Shutoff
1000\$.: (55.0062.00)	electromagnet Volt: 12
15th speed 1/min: 1250	
Charge press. hPa: 1000	TD-travel dif.measurement:
Shutoff	correttore anticipo injezione (SV):
electromagnet Volt: 12	1st speed
Del. quantity cm3/: 52.5057.50	Charge press. hPa: 1000
1000\$.: (51.0059.00)	- TD-travel : -0.61.4 '
18th speed 1/min: 550	- difference mm: -
Charge press. hPa: -	- Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12 Del. quantity cm3/: 25.0026.00	CD mann did mannyanana
1000S.: (22.0G29.0G)	SP press.—dif.measurement:
20th speed 1/min: 800	- pompa di maridata (FP):
Charge press. hPa: 1000	- 1st speed 1/min: 1250
Shutoff	- Charge press. hPa: 1000 - Supply pump-
electromagnet Volt: 12	- supply position : -0.10.3 "
Del. quantity cm3/: 49.5058.50	difference bar: -
10005.: (48.5059.50)	- Shutoff
	- electromagnet Volt: 12
Mech. shutoff:	- Cece, shagher vote. 12
	- Automatic starting fuel delivery:
Electr. shutoff:	-
-	1st speed 1/min: 200
1st speed 1/min: 325	- Shutoff
Del. quantity cm3/: 0.003.00	- electromagnet Volt: 12
1000s.: (0.003.00)	- Del. quantity cm3/: 55.00105.00
Shutoff	- 1000s.: (55.06105.00)
electromagnet volt: -	
- 1. 1. 1	- 2nd speed 1/min: 500
Idle delivery:	- Shutoff
4-5	- electromagnet Volt: 12
1st speed 1/min: 325	Del. quantity cm3/: 14.0030.00
Shutoff - 12	1000s.: (14.0030.00)
electromagnet Volt: 12	- / . t
Del. quantity cm3/: 10.0014.00	4th speed 1/min: 100
1000s.: (8.0016.00)	- Shutoff
Dispersion cm3/: 6.0 1000S.: (6.5)	electromagnet Volt: 12
2nd speed 1/min: 450	- Del. quantity cm3/: 40.0090.00
Shutoff	1000s.: (40.0090.00)
electromagnet Volt: 12	Chutaff alastromagnets
Del. quantity cm3/: 0.003.00	- Shutoff electromagnet:
10005.: (0.003.00)	- - Cut-in
100001. (0.00.1.5.00)	- min voltage : 10.0
Load-dependent start of delivery:	- Rated voltage : 12.0
Injqty.dif.measurement:	- Nated Voltage . 12.0
1. y v quy v a v v medodi emerit.	- Mounting and assembly dimensions:
1st speed 1/min: 1250	
Charge press. hPa: 1000	- Designation
Injqty. cm3/ : -28.030.0"	- K mm: -
difference 1000s.: -	- KF mm: KOT
Shutoff	- MS1 mm: 1.62.0
electromagnet Volt: 12	- SVS max. mm: 5.2
2nd speed 1/min: 1250	- LDA stroke mm: 7.1
Charge press. hPa: 1000	- Ya mm: 37.839.9
1	- Yb mm: 44.950.3
,	

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

Note inst. in remarks column

Test scheet : ROVER Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R509 Type number : 0 460 414 098

Customer Part-No. :

Customer-specific information

Customer : LANDROVER 2.5 TDI

Engine : GEMINI 3 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 116 assembly

Openina

bar: 207.00...210.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.54 Outlet

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1600 Speed

Charge press. hPa: 1000

Setting value mm: 3.50...3.90

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1600 Charge press hPa: 1000

Setting value bar: 6.50...7.10

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1400 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 3.0 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/ 1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 4.0 1000s.: (4.5)

Full-load speed regulation

Speed 1/min: 2100 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 55.00...59.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 85.00...135.00 mind 1000s.: 85.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

H03

Test specifications in parentheses	+
Timing-device characteristic:	- 1nd speed 1/min: 800
2nd speed 1/min: 2000	- Charge-air pressure-setting - point hPa: 300
Charge press hPa: 1000	
TD travel mm: 5.206.00	
	Shutoff
mm: (4.706.50)	- electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 51.0052.00
electromagnet Volt: 12	- 1000s.: (48.3054.70
3rd speed 1/min: 1600	- 2nd speed 1/min: 2600
Charge press hPa: 1000	- Charge press. hPa: 1000
TD travel mm: 3.503.90	- Shutoff
mm: (2.904.50)	- electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	- 1000S.: (G.603.00)
4th speed 1/min: 1200	- 3rd speed 1/min: 2400
Charge press hPa: 1000	- Charge press. hPa: 1000
TD travel mm: 1.101.90	- Shutoff
mm: (0.602.40)	- electromagnet Volt: 12
Shutoff	- Del. quantity sm3/: 7.0017.00
electromagnet Volt: 12	- 1000S.: (6.0018.00)
etetti dilagrati vott. 12	
Supply and proposing about the supply and the suppl	- 5th speed 1/min: 2100
Supply pump pressure characteristic:	- Charge press. hPa: 1000
1at annual 1/ 2000	- Shutoff
1st speed 1/min: 2000	- electromagnet Volt: 12
Charge press. hPa: 1000	- Del. quantity cm3/: 55.0059.00
Supply-pump -	- 1000s.: (52.0062.00)
pressure bar: 7.708.30	- 9th speed 1/min: 2000
Shutoff	- Charge press. hPa: 1000
electromagnet Volt: 12	- Shutoff
2nd speed 1/min: 1600	- electromagnet Volt: 12
Charge press. hPa: 1000	- Del. quantity cm3/: 64.0068.00
Supply-pump +	- 1000S.: (62.8069.20)
pressure bar: 6.507.10	- 12th speed 1/min: 1400
Shutoff	- Charge press. hPa: 1000
electromagnet Volt: 12	- Shutoff
3rd speed 1/min: 1200	- electromagnet Volt: 12
Charge press. hPa: 1000	- Del. quyntity cm3/: 66.5067.50
Supply-pump	- 1000S:: (64.2069.80)
pressure bar: 5.305.90	- 18th speed 1/min: 500
Shutoff	
electromagnet Volt: 12	- Charge press. hPa: - - Shutoff
etetti dilagret vott. 12	
Orania, mantitur at avantia, value	electromagnet Volt: 12
Overlow quantity at overflow valve:	- Del. quantity cm3/: 36.0037.00
1at annual 1/-in. 500	- 1000s.: (33.3039.70)
1st speed 1/min: 500	- 20th speed 1/min: 900
Charge press. hPa: 1000	- Charge press. hPa: 1000
Shutoff	- Shutoff
electromagnet Volt: 12	- electromagnet Volt: 12
Overflow : 55.60100.00	- Del. quantity cm3/: 61.6066.60
quantity cm3/10s: (40.60115.00)	- 1000s.: (60.1068.10)
2nd speed 1/min: 2000 +	-
Charge press. hPa: 1000	- Mech. shutoff:
Shutoff	-
electromagnet Volt: 12	- Electr. shutoff:
Overflow : 83.40166.80	-
quantity cm3/10s: (68.40181.80)	- 1st speed 1/min: 350
	- Del. quantity cm3/: 0.003.00
Delivery-quant. and breakaway char.:	- 1000S.: (0.003.00)
The state of the s	1900011 (0.001119.00)

H04

Shutoff electromagnet volt: 2nd speed 1/min: 350
Del. quantity cm3/: 0.00...3.00 10008.: (0.00...3.00) Shutoff electromagnet Volt: -Idle delivery: 1/min: 350 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.00...12.00 1000S.: (5.00...15.00) cm3/: 4.0 Dispersion 1000S.: (4.5) 1/min: 500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 200 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) 1/min: 350 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...70.00 1000s.: (30.00...70.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 85.00...135.00 1000s.: (84.50...135.50) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 mm: KOT K KF mm: 0.9...1.2 MS1 LDA stroke mm: 7.0 mm: 42.3...46.3 Ya mm: 50.0...61.0 Yb

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

H05

Remarks:

Note inst. in remarks column

Test scheet : ROVER Edition : 02.94

replaces : -

Calibrating oil : ISO-4113

Injection pump : VE4/11F2000R509-1 Type number : 0 460 414 099

Customer Part-No.:

Customer-specific information

Customer : LANDROVER 2.5 TDI

Engine : GEMINI 3 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp. "C

with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 116

Opening |

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery
Prestroke mm: (from BDC): -

Start of delivery block Piston stroke mm: 1.4 mm: -

Outlet : C

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1600 Charge press. hPa: 1000

Setting value mm: 3.50...3.90

Shutoff

electromagnet Voit: 24

Supply-pump pressure

Speed 1/min: 1600 Charge press hPa: 1000

Setting value bar: 6.50...7.10

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1400 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.0 1000s.: (4.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 36.00...37.00

Shutoff

electromagnet Voit: 24

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 4.0 10008.: (4.5)

Full-load speed regulation

Speed 1/min: 2100 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 55.00...59.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 44.00...46.00 V

mind 1000s.: 44.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1nd speed 1/min: 800 Charge-air pressure-setting point hPa: 300 LDA-stroke mm: 7.0 2nd speed 1/min: 2000 Charge press hPa: 1000 TD travel mm: 5.10...5.90 Shutoff mm: (4.60...6.40) Shutoff electromagnet Volt: 24
3rd speed 1/min: 1600
Charge press hPa: 1000
TD travel mm: 3.10...3.50 Charge press. hPa: 1000 Shutoff rm: (2.50...4.10) electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 3rd speed 1/min: 2400 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 4th speed 1/min: 1400 Charge press hPa: 1000 TD travel mm: 1.60...2.40 electromagnet Volt: 24 Del. quantity cm3/: 7.00...17.00 1000S.: (6.00...18.00) mm: (1.10...2.90) Shutoff electromagnet Volt: 24 1/min: 2100 5th speed Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff electromagnet Volt: 24

Del. quantity cm3/: 55.00...59.00

1000S.: (52.00...62.00)

9th speed 1/min: 2000 1st speed 1/min: 2000 Charge press. hPa: 1000 Supply-pump pressure bar: 7.70...8.30 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 1600 Charge press. hPa: 1000 electromagnet Volt: 24
Del. quantity cm3/: 64.00...68.00
1000S.: (62.80...69.20) Supply-pump pressure bar: 6.50...7.10 12th speed 1/min: 1400 Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 3rd speed 1/min: 1400 Shutoff electromagnet Volt: 24
Del. quyntity cm3/: 66.50...67.50
1000S.: (64.20...69.8) Charge press. hPa: 1000 Supply-pump bar: 5.80...6.40 pressure 18th speed 1/min: 500 Shutoff Charge press. hPa: electromagnet Volt: 24 Shutoff Overlow quantity at overflow valve: 1st speed 1/min: 500 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24
Overflow : 55.60...100.00
quantity cm3/10s: (40.60...115.00)
2nd speed 1/min: 2000 electromagnet Volt: 24 Del. quantity cm3/: 61.60...66.60 1000s.: (60.10...68.10) Charge press. hPa: 1000 Mech. shutoff: Shutoff electromagnet Volt: 24 Electr. shutoff: : 83.40...166.80 Overflow quantity cm3/10s: (68.40...181.80) 1st speed 1/min: 350

Del. quantity cm3/: 0.00...3.00 10005.: (0.00...3.00) Shutoff electromagnet volt: -2nd speed 1/min: 350 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet Volt: -Idle delivery: 1/min: 350 1st speed Shutoff electromagnet voit: 24 Del. quantity cm3/: 8.00...12.00 1000s.: (5.00...15.00) cm3/: 4.0 Dispersion 1000S.: (4.5) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set)
scarico) (ARF) gaz d'échappement-ARF) Spacing mm: 12.0 1st speed 1/min: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 38.00...40.00 1000s.: (35.00...43.00) Automatic starting fuel delivery: 1st speed 1/min: 200 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 90.00...140.00 1000s.: (90.00...140.00) 2nd speed 1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 30.00...70.00 1000S.: (30.00...70.00) 3rd speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 97.0...99.0 "V" 1000s.: (90.50...105.50) 4th speed 1/min: 100

Shutoff electromagnet Volt: 24 Del. quantity cm3/: 44.0...46.0 "L" 1000s.: (37.50...52.50) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: KOT MS1 mm: 1.1...1.5 LDA stroke mm: 7.0 mm: 42.3...46.3 Ya mm: 50.0...61.0 Yb Remarks: Operate control lever after each manifold-pressure compensator pressure change. Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

lever on drive end

Starting delivery check V = Speed-control lever in full-load position

Starting delivery check
L = Speed-control lever in idle
position

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : PEN Edition : 02.94 replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900L519 Type number : 0 460 414 101

Customer Part-No. :

Customer-specific information Customer : PENTA

: TAMD 31 "DI" Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Openina |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Charge press. hPa: 1000

Setting value mm: 1.80...2.20

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 1000

Setting value bar: 6.40...7.00

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 56.50...57.50 cm3/: 5.0 1000s.: (5.0) Dispersion

Full-load del. w/out charge press.:

1/min: 650 Speed Del. quantity cm3/

1000s.: 35.00...36.00

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 11.00...15.00

Del. quantity cm3/: 6.0 1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 2150 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 19.00...25.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 20.00...70.00 mind 1000s.: 20.00

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900 Charge press hPa: 1000

TD travel mm: 4.00...4.80

mm: (3.70...5.10)

1/min: 1500 3rd speed Charge press hPa: 1000

TD travel mm: 1.80...2.20 mm: (1.30...2.70)

6th speed 1/min: 1700

Charge press. hPa: 1000 mm: 2.60...3.60 TD travel

mm: (2.40...3.80)

Supply-pump pressure characteristic:

1st speed 1/min:		Del. quantity cm3/: 56.0061.00
Charge press. hPa:	1000	1000s.: -
Supply-pump	7 70 9 70	
pressure bar: 2nd speed 1/min:	1500	Mech. shutoff:
Charge press. hPa:		Mech. Abstellung:
Supply-pump	1.	1st speed 1/min: 1900
pressure bar:	6.407.00	Charge press. hPa: 1000
3rd speed 1/min:	750 +	Del. quantity cm3/: 0.003.00
Charge press. hPa:	1000	100ås.: (0.003.00)
Supply-pump	+	Shutoff
pressure bar:	3.804.40	electromagnet volt: -
Overlow quantity at	overflow valve:	Electr. shutoff:
1st speed 1/min:	450	1-t 1 // 700
Charge press. hPa:	- 1	1st speed 1/min: 300
	41.7083.40	Charge press. hPa: - Del. quantity cm3/: 0.003.00
quantity cm3/10s:		1000s.: (0.003.00)
2nd speed 1/min:		Shutoff
Charge press. hPa:		electromagnet volt: 12
Overflow :		
quantity cm3/10s:	(40.60154.00)	Idle delivery:
Delivery-quant. and	breakaway char.:	1st speed 1/min: 300
, 4	+	Del. quantity cm3/: 11.0015.00
	+	1000s.: (8.0018.00)
1nd speed 1/min:		Dispersion cm3/: 6.0
Charge-air pressure		1000s.: (6.0)
point hPa:		2nd speed 1/min: 400
LDA-stroke mm:		Del. quantity cm3/: 0.003.00
Del. quantity cm3/:	(// 00 50 00)	1000s.: (0.003.00)
2nd speed 1/min:	(44.0050.00)	5th speed 1/min: 250
Charge press. hPa:		Del. quantity cm3/: 17.0029.00 1000s.: -
Del. quantity cm3/:		19005.
	(0.003.00)	Automatic starting fuel delivery:
5th speed 1/min:		The second of th
Charge press. hPa:	1000 +	1st speed 1/min: 300
Del. quantity cm3/:	19.0025.00	Del. quantity cm3/: 60.00100.00
	(18.0026.00)	1000s.: (60.00100.00)
9th speed 1/min:		2 4/4 700
Charge press. hPa:	1000	2nd speed 1/min: 500
Del. quantity cm3/:	(52.0058.00)	Del. quantity cm3/: 20.0050.00
10th speed 1/min:	1200	1000s.: (20.0050.00)
Charge press. hPa:		4th speed 1/min: 100
Del. quantity cm3/:		Del. quantity cm3/: 20.0070.00
1000s.:	-	1000s.: (20.0070.00)
12th speed 1/min:	1500	
Charge press. hPa:		Shutoff electromagnet:
Del. quyntity cm3/:	56.5057.50	
	(54.5059.50)	Cut-in 40.0
18th speed 1/min:		min voltage : 10.0
Charge press. hPa: Del. quantity cm3/:		Rated voltage : 12.0
1000 +	(32.5037.50)	Mounting and accombly dimensions:
20th speed 1/min:		Mounting and assembly dimensions:
Charge press. hPa:	· · · · · · · · · · · · · · · · · · ·	Designation
. <u> </u>	4	K mm: -
	•	

KF mm: KOT mm: 1.1...1.5 mm: 7.5 mm: 37.2...39.2 mm: 53.0...61.0 MS SVS max. Ya

Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : SOF : 02.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R521 : 0 460 414 102 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-SOFIM

: 8140.27.2585 "DI" Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 455 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400 Charge press. hPa: 1200 Setting value mm: 2.90...3.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 1200

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1750 Charge press. hPa: 1200

Del. quantity cm3/ 1000s.: 50.50...51.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550

Del. quantity cm3/ 1000s.: 26.00...27.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 300

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

Speed 1/min: 2100 Charge press hPa: 1200

Del. quantity cm3/

1000s.: 33.00...37.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...90.00 mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1400 Charge press hPa: 1200

Injqty. cm3/	+ Supply-pump
difference 1000S.: -18.026.0 #	pressure bar: 8.709.30
Shutoff	+ Shutoff
electromagnet Volt: 12 TD-travel dif.measurement	+ electromagnet Voit: 12
	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
correttore anticipo iniezione (SV)	Overlow quantity at overflow valve:
1. Speed 1/min: 1400	†
Charge press hPa: 1200	1st speed 1/min: 800
TD-travel	+ Charge press. hPa: 1200
difference mm: -0.70.9 #	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Overflow : 75.00119.50
	† quantity cm3/10s: (60.00134.50)
Inspection-pump test specifications	+ 2nd speed 1/min: 1900
Test specifications in parentheses	+ Charge press. hPa: 1200
	+ Shutoff
Timing-device characteristic:	+ electromagnet Volt: 12
-	Overflow : 97.30180.70
2nd speed 1/min: 1750	+ quantity cm3/10s: (82.30195.70)
Charge press hPa: 1200	+
TD travel mm: 5.305.90	Delivery-quant. and breakaway char.:
mm: (4.906.30)	decivery quarter and breakaway criat
Shutoff	1
electromagnet Volt: 12	Ind speed 1/min: 800
3rd speed 1/min: 1400	
	Charge-air pressure-setting
	+ point hPa: 600
	Shutoff
mm: (2.303.70)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 45.5046.50
electromagnet Volt: 12	† 1000\$.: (42.0050.00)
4th speed 1/min: 1250	+ 2nd speed 1/min: 2300
Charge press hPa: 1200	+ Charge press. hPa: 1200
TD travel mm: 1.602.20	+ Shutoff
mm: (1.202.60)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	+ 1000s.: (0.003.00)
5th speed 1/min: 1900	† 5th speed 1/min: 2100
Charge press. hPa: 1200	Charge press. hPa: 1200
TD travel mm: 5.305.90	Shutoff
mm: (4.906.30)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 33.0037.00
electromagnet Volt: 12	10008.: (30.5039.50)
o to the small for the control of the small for the small for the control of the	8th speed 1/min: 2000
Supply-pump pressure characteristic:	Charge press. hPa: 1200
outputy parts pressure and deterrisers.	+ Shutoff
1st speed 1/min: 800	1
Charge press. hPa: 1200	electromagnet Volt: 12
Supply-pump	Del. quantity cm3/: 43.0051.00
	1000S.: (41.0053.00)
	+ 9th speed 1/min: 1900
Shutoff 12	Charge press. hPa: 1200
electromagnet Volt: 12	+ Shutoff
2nd speed 1/min: 1400	electromagnet Volt: 12
Charge press. hPa: 1200	Poel. quantity cm3/: 48.5053.50
Supply-pump	1000\$.: (47.5054.50)
pressure bar: 6.607.20	† 12th speed 1/min: 1750
Shutoff	f Charge press. hPa: 1200
electromagnet Volt: 12	+ Shutoff
3rd speed 1/min: 1900	+ electromagnet Volt: 12
Charge press. hPa: 1200	Del. quyntity cm3/: 50.5051.50
·	1000\$.: (47.5054.50)

15th speed 1/min: 1000	+ Charge press. hPa: 1200
Charge press. hPa: 1200	Inj.—qty. cm3/: 0.0+3.0 ' Z
Shutoff	+ difference 1000s.: -
electromagnet Volt: 12	
	+ Shutoff
Del. quantity cm3/: 45.0050.00	+ electromagnet Volt: 12
1000\$.: (43.5051.50)	†
16th speed 1/min: 800	TD-travel dif.measurement:
Charge press. hPa: -	+ correttore anticipo iniezione (SV):
Shutoff	+ 1st speed 1/min: 1400
electromagnet volt: 12	+ Charge press. hPa: 1200
Del. quantity cm3/: 26.5031.50	
	+ TD-travel : -0.700.90'
1000H.: (25.5032.50)	difference mm: -
18th speed 1/min: 550	+ Shutoff
Charge press. hPa: -	+ electromagnet Volt: 12
Shutoff	+ -
electromagnet Volt: 12	+ SP pressdif.measurement:
Del. quantity cm3/: 26.0027.00	+ pompa di mandata (FP):
10005.: (23.6030.00)	+ 1st speed 1/min: 1400
20th speed 1/min: 800	
	† Charge press. hPa: 1200
Charge press. hPa: 1200	+ Supply pump-
Shutoff	+ pressure : -0.100.30"
electromagnet Volt: 12	+ difference bar: -
Del. quantity cm3/: 45.5054.50	+ Shutoff
10005.: (44.5055.50)	+ electromagnet Volt: 12
1000011 (771.501.1.551.50)	T etectionagnet vott. 12
Mech. shutoff:	Automobile abouting first dations
metri. Shutorr:	+ Automatic starting fuel delivery:
Minaha akasa Ka	†
Electr. shutoff:	1 1st speed 1/min: 200
	+ Shutoff
1st speed 1/min: 300	+ electromagnet Volt: 12
Del. quantity cm3/: 0.003.00	+ Del. quantity cm3/: 55.00105.00
10005.: (0.003.00)	+ 1000s.: (55.00105.00)
Shutoff	1
electromagnet volt: -	2nd speed 1/min: 500
ctetti ologi et vott.	+ Shutoff
Idla dalivama	
Idle delivery:	electromagnet Volt: 12
4 / 4 / 5 700	+ Del. quantity cm3/: 14.0030.00
1st speed 1/min: 300	† 1000s.: (14.0030.00)
Shutoff	+
electromagnet Volt: 12	+ 4th speed 1/min: 100
Del. quantity cm3/: 8.0012.00	+ Shutoff
10005.: (6.0014.00)	electromagnet Volt: 12
Dispersion cm3/: 6.0	
	bel. quantity cm3/: 40.0090.00
10005.: (6.5)	1000s.: (40.0090.00)
2nd speed 1/min: 425	†
Shutoff	+ Shutoff electromagnet:
electromagnet Volt: 12	+
Del. quantity cm3/: 0.003.00	∔ Cut-in
10005.: (0.003.00)	min voltage : 10.0
	Rated voltage : 12.0
Load-dependent start of delivery	nated voltage . 12.0
Load-dependent start of delivery:	T Manadana and any fit is
Injqty.dif.measurement:	Mounting and assembly dimensions:
1st speed 1/-2- 1/00	
1st speed	†
Inarga brace NDa: 12/11	Designation
Charge press. hPa: 1200	+ K mm: K1
Injqty. cm3/ : -19.021.0''	+ K mm: K1 + KF mm: -
Injqty. cm3/ : -19.021.0" difference 10005.: -	+ K mm: K1 - KF mm: - - MS mm: 1.21.6
Injqty. cm3/ : -19.021.0''	+ K mm: K1 - KF mm: - - MS mm: 1.21.6
<pre>Injqty. cm3/ : -19.021.0" difference 1000s.: - Shutoff</pre>	- K mm: K1 - KF mm: - - MS mm: 1.21.6 - Ya mm: 37.939.9
Injqty. cm3/ : -19.021.0" difference 10005.: -	+ K mm: K1 - KF mm: - - MS mm: 1.21.6

Remarks:

Operate control lever after each manifold—pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : SOF Edition : 02.94 replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F1900R542 Type number : G 460 414 105

Customer Part-No. :

Customer-specific information Customer : IVECC-SOFIM

Engine : 8140.47.2200 "DI"

KW: 83 Power 1/min: 1900 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mn: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400 Charge press. hPa: 1000 Setting value mm: 2.40...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1400 Speed Charge press hPa: 1000

Setting value bar: 6.40...7.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1750 Charge press. hPa: 1000

Del. quaritity cm3/ 1000s.: 60.50...61.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 550 Speed

Del. quantity cm3/ 1000s.: 23.00...24.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 6.0 1000S.: (6.5)

Full-load speed regulation

1/min: 2100 Charge press hPa: 1000 Del. quantity cm3/

1000s.: 38.00...46.00

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 40.00...90.00

1000s.: 40.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

H16

+	3rd speed 1/min:	1900
Speed 1/min: 1400 +	Charge press. hPa:	
Charge press hPa: -	Supply-pump	
Injqty. cm3/	pressure bar:	8.108.70
difference 1000s.: -15.023.0 #	Shutoff	0
Shutoff	electromagnet Volt:	10
electromagnet Volt: 12	eteet anagree vote.	16
TD-travel dif.measurement	Overlow quantity at	avantia, valua.
correttore anticipo iniezione (SV)	over tow quantity at	over tow valve:
1. Speed 1/min: 1400	1st speed 1/min.	000
Charge press hPa: -	1st speed 1/min:	
TD-travel	Charge press. hPa:	1000
	Shutoff	40
difference mm: -0.81.0 #	electromagnet Volt:	
Shutoff	Overflow :	75.00,119.50
electromagnet Volt: 12	quantity cm3/10s:	
·	2nd speed 1/min:	
Inspection pump test specifications	Charge press. hPa:	1000
Test specifications in parentheses +	Shutoff	
4-	electromagnet Volt:	12
Timing-device characteristic:	Overflow:	97.30180.70
<u> </u>	quaritity cm3/10s:	
2nd speed 1/min: 1600	400000	
Charge press hPa: 1000	Delivery-quant. and	hreakaway rhan
TD travel mm: 3.504.10	beenvery quarter and	Di Canaway Cilai .
mm: (3.104.50)		
Shutoff	1nd speed 1/min:	900
electromagnet Volt: 12		
3rd speed 1/min: 1400	Charge-air pressure	
	point hPa:	400
Charge press hPa: 1000	Shutoff	40
TD travel mm: 2.402.60	electromagnet Volt:	12
mm: (1.803.20)	Del. quantity cm3/:	
Shutoff		(45.0053.00)
electromagnet Volt: 12	2nd speed 1/min:	
4th speed 1/min: 1250 +	Charge press. hPa:	1000
Charge press hPa: 1000	Shutoff	
TD travel mm: 1.201.80	electromagnet Volt:	12
mm: (0.802.20) +	Del. quantity cm3/:	0.003.00
Shutoff	1000s.:	(0.003.00)
electromagnet Volt: 12	3rd speed 1/min:	
5th speed 1/min: 1900 +	Charge press. hPa:	
Charge press. hPa: 1000	Shutoff	,000
TD travel nm: 4.605.20	electromagnet Volt:	12
mm: (4.205.60)	Del. quantity cm3/:	
Shutoff	10000	(23.5032.50)
electromagnet Volt: 12	5th speed 1/min:	
T		
Cimplianian massure shanneteristics	Charge press. hPa:	1000
Supply-pump pressure characteristic:	Shutoff	40
1mt =====d	electromagnet Volt:	
1st speed 1/min: 800	Del. quantity cm3/:	
Charge press. hPa: 1000		(36.0048.00)
Supply-pump +	9th speed 1/min:	
pressure bar: 4.204.80	Charge press. hPa:	1000
Shutoff	Shutoff	
electromagnet Volt: 12	electromagnet Volt:	12
2nd speed 1/min: 1400 +	Del. quantity cm3/:	58.5063.50
Charge press. hPa: 1000	1000s.	(57.5064.50)
Supply-pump +	12th speed 1/min:	
pressure bar: 6.407.00	Charge press. hPa:	
Shutoff	Shutoff	,500
electromagnet Volt: 12	electromagnet Volt:	12
The second control of the second seco	Trees will grick folls	1 Sa

Del. quyntity cm3/: 60.5061.50	
1 000 \$.: (57.5064.50)	TD-travel dif.measurement:
15th speed 1/min: 1250 +	correttore anticipo iniezione (SV):
Charge press. hPa: 1000	1st speed 1/min: 1400
Shutoff	Charge press. hPa: -
electromagnet Volt: 12	TD-travel : -1.01.8
Del. quantity cm3/: 55.5060.50	difference mm: -
1000s.: (54.0062.00)	Shutoff
16th speed 1/min: 800	
Charge press. hPa: 1000	electromagnet Volt: 12
Shutoff	CD manage all for management and a
- · · · - · · · · · · · · · · · · · · ·	SP press.—dif.measurement:
electromagnet volt: 12	ротра di mandata (FP):
Del. quantity cm3/: 54.0063.00	1st speed
1000H.: (53.0064.00)	Charge press. hPa: -
18th speed 1/min: 550	Supply pump-
Charge press. hPa: -	pressure : -0.10.3 '
Shutoff	difference bar: -
electromagnet Volt: 12	Shutoff
Del. quantity cm3/: 23.0024.00	electromagnet Volt: 12
1 000s.: (20.0027.00)	
 	Automatic starting fuel delivery:
Mech, shutoff:	
1	1st speed 1/min: 200
Electr. shutoff:	Shutoff
	electromagnet Volt: 12
1st speed 1/min: 325	Del. quantity cm3/: 55.00105.00
Charge press. hPa: -	1000S.: (55.00105.00)
Del. quantity cm3/: 0.003.00	10003.: (33.00103.00)
10008.: (0.003.00)	2nd annual 1/min. 500
	2nd speed 1/min: 500
Shutoff	Shutoff
electromagnet volt: -	electromagnet Volt: 12
<u> </u>	Del. quantity cm3/: 14.0030.00
Idle delivery:	1600s.: (14.0030.00)
†	
1st speed	4th speed 1/min: 100
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quantity cm3/: 10.0014.00	Del. quantity cm3/: 40.0090.00
1000s.: (8.0016.00)	1000s.: (40.0090.00)
Dispersion cm3/: 6.0	
1000s.: (6.5)	Shutoff electromagnet:
2nd speed 1/min: 450	3
Shutoff	Cut-in
electromagnet Volt: 12	min voltage : 10.0
Del. quantity cm3/: 0.003.00	Rated voltage : 12.0
10005.: (0.003.00)	, in the second of the second
	Mounting and assembly dimensions:
Load-dependent start of delivery:	The series and addensely armonditions.
Injqty.dif.measurement:	Designation
	K mm: K1
1st speed	KF mm: KOT
Charge press. hPa: -	MS mm: 1.41.6
Injqty. cm3/ : -15.517.5 "	Ya mm: 33.035.0
difference 1000s.: -	
Shutoff +	Yb mm: 46.452.4
	Demanting
electromagnet Volt: 12	Remarks:
2nd speed 1/min: 1400	:
Charge press. hPa: -	
Injqty. cm3/: +2.0+8.0' Z	Operate control lever after each
difference 1000s.: -	manifold-pressure compensator pressure

change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PEN Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/11F2050L540 Type number : 0 460 414 106

Customer Part-No. :

Customer-specific information Custoner : PENTA

Engine : TAMD 31 P 5424

KW: 117 1/min: 2050 Power Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.0 x Wall thickness : 2.0 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1000 Setting value mm: 2.50...2.90

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 1000

Setting value bar: 6.90...7.50

Full-load del. with charge press.:

Speed 1/min: 1500 Change press. hPa: 1000

De: quantity cm3/

1000s.: 64.00...65.00

Dispersion cm3/: 5.01000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 650 Speed

Del. quantity cm3/

1000s.: 35.C0...36.00

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 11.00...15.00

Del. quantity cm3/: 6.0 1000s.: (6.0)

Full-load speed regulation

Speed 1/min: 2150 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 45.00...49.00

Start:

Speed 1/min: 100

Del. quantity cm3/: 20.00...70.00 mind 1000s.: 20.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1700 hPa: 1000 Charge press

mm: 3.90...4.70 TD travel mm: (3.40...5.20)

1/min: 1500 3rd speed hPa: 1000 Charge press

TD travel mm: 2.50...2.90

mm: (2.00...3.40)

4th speed 1/min: 1300 Charge press hPa: 1000

H20

mm: 0.70...1.50 Del. quyntity cm3/: 64.00...65.00 1000s.: (62.00...67.00) TD travel mm: (0.20...2.00)1/min: 650 16th speed Charge press. hPa: -Supply-pump pressure characteristic: Del. quantity cm3/: 35.00...36.00 1000H.: (33.00...38.00) 1st speed 1/min: 2050 Charge press. hPa: 1000 Supply-pump Mech. shutoff: bar: 8.70...9.30 pressure Mech. Abstellung: 1/min: 1500 2nd speed Charge press. hPa: 1000 1st speed 1/min: 2050 Supply-pump Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) bar: 6.90...7.50 pressure 3rd speed 1/min: 750 Charge press. hPa: 1000 Shutoff Supply-pump electromagnet volt: bar: 4.20...4.80 pressure Electr. shutoff: Overlow quantity at overflow valve: 1st speed 1/min: 300 1st speed 1/min: 650 Charge press. hPa: -Del. quantity cm3/: 0.G0...3.00 1000s.: (0.00...3.00) Charge press. hPa: -: 41.70...83.40 Overflow quantity cm3/10s: (26.70...98.40) Shutoff 2nd speed 1/min: 2050 electromagnet volt: 12 Charge press. hPa: 1000 Overflow : 55.60...139.00 Idle delivery: cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: 1000s.: (8.00...18.00) Dispersion cm3/: 6.01nd speed 1/min: 900 1000s.: (6.0) Charge-air pressure-setting 2nd speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 5th speed 1/min: 250 Del. quantity cm3/: 20.00...40.00 1000S.: ~ hPa: 400 Automatic starting fuel delivery: Charge press. hPa: 1000 1st speed 1/min: 300 Del. quantity cm3/: 15.00...39.00 1000s.: -Del. quantity cm3/: 60.00...100.00 1000s.: (60.00...100.00) 5th speed 1/min: 2150 Charge press. hPa: 1000 2nd speed 1/min: 500 Del. quantity cm3/: 20.00...50.00 Del. quantity cm3/: 45.00...49.00 1000s.: (41.00...53.00) 9th speed 1/min: 2050 Charge press. hPa: 1000 Del. quantity cm3/: 55.00...60.00 1000s.: (20.00...50.00) 1/min: 100 4th speed Del. quantity cm3/: 20.00...70.00 1000s.: (54.50...60.50) 1/min: 750 1000s.: (20.00...70.00) 10th speed Charge press. hPa: 1000 Shutoff electromagnet: Del. quantity cm3/: 66.50...71.50 1000s.: (64.00...74.00) Cut-in 1/min: 1500 12th speed min voltage : 10.0 Charge press. hPa: 1000 Rated voltage

Mounting and assembly dimensions:

Designation

K	mm: 3.23.4
KF	mm: KOT
MS	mm: 1.11.5
Ya	mm: 37.239.2
Yb	mm: 48.556.5

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : CUM Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F125CR359 Type number : 0 460 424 054 Customer Part-No.: 3 919 403

Customer-specific information

Customer : CDC

Engine : 4 BTA **AUTO**

TEST BENCH REQUIREMENTS

Calibrating-oil •0 return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.25

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses

Timing device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 2.00...2.40

AFB/AFB

Volt: 12 valve Shutoff electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1100 Charge press hPa: 1000

Setting value bar: 5.30...5.90

KSB/AFB

valve Volt: 12 Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 83.00...84.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 53.00...54.00

11

KSB/AFB valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/ 1000s.: 10.00...12.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1330 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 68.00...74.00

KSB/AFB

valve Volt: 12

H23

Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 2nd speed 1/min: 1000 Charge press. hPa: 1000 Start: Supply-pump Speed 1/min: 100 Del. quantity cm3/: 80.00...140.00 bar: 4.90...5.50 pressure KSB/AFB 1000s.: 80.00 valve Volt: 12 KSB/AFB Shutoff Volt: 12 Valve electromagnet Volt: 12 Shutoff 1/min: 1100 3rd speed Charge press. hPa: 1000 electromagnet Volt: 12 Supply-pump Inspection-pump test specifications bar: 5.30...5.90 pressure Test specifications in parentheses KSB/AFB evlsv Volt: 12 Timing-device characteristic: Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 4th speed 1/min: 1250 hPa: 1000 Charge press Charge press. hPa: 1000 mm: 2.80...3.60 TD travel Supply-pump mm: (2.50...3.90) bar: 6.00...6.60 pressure KSB/AFB KSB/AFB valve Volt: 12 Volt: 12 valve Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 1100 electromagnet Volt: 12 Charge press hPa: 1000 Overlow quantity at overflow valve: mm: 2.00...2.40 TD travel mm: (1.50...2.90) 1st speed 1/min: 500 KSB/AFB Charge press. hPa: valve Volt: 12 KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 Shutoff 4th speed 1/min: 1000 Charge press hPa: 1000 electromagnet Volt: 12 Overflow : 41.70...83.40 mm: 0.90...1.70 TD travel quantity cm3/10s: (26.70...98.40) mm: (0.60...2.00) 1/min: 1250 2nd speed KSB/AFB Charge press. hPa: 1000 valve Volt: 12 KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 Shutoff 8th speed 1/min: 400* electromagnet Volt: 12 Charge press. hPa: -Overflow : 55.60...139.00 TD travel mm: 2.90...3.90 cm3/10s: (40.60...154.00) quantity mm: -KSB/AFB Delivery-quant. and breakaway char.: valve Volt: -Shutoff electromagnet Volt: 12 1nd speed 1/min: 700 Charge-air pressure-setting Supply-pump pressure characteristic: hPa: 535 point mm: 6.4 LDA-stroke 1/min: 500 1st speed KSB/AFB Charge press. hPa: 1000 valve Volt: 12 Supply-pump Shutoff bar: 2.60...3.20 pressure electromagnet Volt: 12 Del. quantity cm3/: 71.50...72.50 KSB/AFB 1000s.: (68.00...76.00) Volt: 12 valve 2nd speed 1/min: 1500

Charge press. hPa: KSB/AFB	 	Shutoff / electromagnet Volt: 12
valve Volt: Shutoff	12	Del. quantity cm3/: 94.00103.0 1000s.: -
electromagnet Volt:	12 +	
Del. quantity cm3/:	0.00.300	Mech. shutoff:
	(0.003.00)	Mech. Abstellung:
3rd speed 1/min:		neem. Abstettung.
		4 4000
Charge press. hPa:	1000	1st speed
KSB/AFB	†	Charge press. hPa: 1000
valve Volt:	12 +	Del. quantity cm3/: 0.093.00
Shutoff	†	1000s.: (0.003.00)
<pre>electromagnet Volt:</pre>	12 +	Shutoff
Del. quantity cm3/:	15.0045.00	electromagnet volt: 12
	(15.0045.00)	KSB/AFB
5th speed 1/min:		valve Volt: 12
Charge press. hPa:		vacve voct. 12
KSB/AFB	1000 T	Electr. shutoff:
valve Volt:	12	Electr. Shutoff:
	12 †	A
Shutoff	†	1st speed 1/min: 375
electromagnet Volt:		Del. quantity cm3/: 0.003.00
Del. quantity cm3/:		1000s.: (0.003.00)
10 00 \$.:	(65.0077.00)	Shutoff
9th speed 1/min:	1250 +	electromagnet volt: -
Charge press. hPa:	1000	KSB/AFB
KSB/AFB	1	valve Volt: 12
valve Volt:	12	vacve voct. 12
Shutoff		Idle delivery:
electromagnet Volt:	12	idle delivery.
Del. quantity cm3/:		1-t
1000c	(75.00(9.00)	1st speed 1/min: 375
10005.:	(75.0081.00)	KSB/AFB
10th speed 1/min:		valve Volt: 12
Charge press. hPa:	1000 +	Shutoff
KSB/AFB	+	electromagnet Volt: 12
valve Volt:	12 +	Del. quantity cm3/: 10.0012.00
Shutoff	+	1000s.: (6.0016.00)
electromagnet Volt:	12 +	Dispersion cm3/: 5.5
Del. quantity cm3/:		100GS.: (7.0)
	(75.5082.50)	2nd speed 1/min: 450
12th speed 1/min:		KSB/AFB
Charge press. hPa:		valve Volt: 12
KSB/AFB	T	Shutoff
valve Volt:	12	
Shutoff	12	electromagnet Volt: 12
	12	Del. quantity cm3/: 0.002.00
electromagnet Volt:		1000s.: (0.002.00)
Del. quyntity cm3/:		
	(80.5086.50)	Automatic starting fuel delivery:
18th speed 1/min;		•
Charge press. hPa:	- +	1st speed 1/min: 130
KSB/AFB	+	KSB/AFB
valve Volt:	12 +	valve Volt: 12
Shutoff	1	Shutoff
electromagnet Volt:	12	electromagnet Volt: 12
Del. quantity cm3/:		Del. quantity cm3/: 80.00140.00
	(49.5057.50)	10005.: (80.00140.00)
20th speed 1/min:		10003 (00.00140.00)
		2nd around 1/min 200
Charge press. hPa: KSB/AFB	1000	2nd speed 1/min: 250
	13	KSB/AFB
valve Volt:	14	valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 20.00...40.00 1000s.: (20.00...40.00)

1/min: 100 4th speed

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 80.00...140.00 1000s.: (80.00...140.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K

KF mm: KOT

mm: 1.2...1.5 mm: 2.3 MS1

SVS max. LDA stroke mm: 6.4

Ya mm: 34.8...38.8

Yb mm: 40.3...45.7

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet : CUM : 02.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/12F1250R359-1 : 0 460 424 055 Type number

Customer Part-No.: 3 919 401

Customer-specific information

Customer : CDC

Engine : 4 BTA **AUTO**

Power KW: 77 1/min: 1250 Speed

TEST BENCH REQUIREMENTS

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 1.00

mm: +-0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses Timing-device travel

1/min: 1100 Speed Charge press. hPa: 1000

mm: 1.90...2.30 Setting value

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000

Setting value bar: 5.40...6.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 73.00...74.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion

1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500 Del. quantity cm3/

1000s.: 43.50...44.50

11

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 7.50...11.50

KSB/AFB

Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

1/min: 1340 Speed Charge press hPa: 1000

Del. quantity cm3/ Supply-pump 1000s.: 54.00...60.00 bar: 2.70...3.30 pressure KSB/AFB KSB/AFB valve Volt: 12 Volt: 12 valve Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 2nd speed 1/min: 900 Start: Charge press. hPa: 1000 Supply-pump 1/min: 100 Speed pressure bar: 4.40...5.00 Del. quantity cm3/: 80.00...140.00 KSB/AFB 1000s.: 80.00 mind valve Volt: 12 KSB/AFB Shutoff Valve Volt: 12 electromagnet Volt: 12 Shutoff 3rd speed 1/min: 1100 electromagnet Volt: 12 Charge press. hPa: 1000 Supply-pump Inspection-pump test specifications bar: 5.40...6.00 pressure Test specifications in parentheses KSB/AFB Volt: 12 valve Timing-device characteristic: Shutoff electromagnet Volt: 12 1/min: 1250 2nd speed 1/min: 1250 4th speed hPa: 1000 mm: 2.90...3.70 Charge press Charge press. hPa: 1000 TD travel Supply-pump mm: (2.60...4.00) pressure bar: 6.00...6.60 KSB/AFB KSB/AFB valve Volt: 12 valve Volt: 12 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 1/min: 1100 3rd speed Charge press hPa: 1000 Overlow quantity at overflow valve: TD travel mm: 1.90...2.30 mm: (1.40...2.80) 1st speed 1/min: 500 KSB/AFB Charge press. hPa: -Volt: 12 valve KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 Shutoff 4th speed 1/min: 900 electromagnet Volt: 12 hPa: 1000 Charge press Overflow : 41.70...83.40 TO travel mm: 0.60...1.55 cm3/10s: (26.70...98.40) quantity mm: (0.40...1.80) 1/min: 1250 2nd speed KSB/AFB Charge press. hPa: 1000 Volt: 12 valve KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff 1/min: 400* 8th speed electromagnet Volt: 12 Charge press. hPa: -: 55.60...139.00 Overflow TD travel mm: 2.70...3.70 quantity cm3/10s: (40.60...154.00) mn: -KSB/AFB Delivery-quant. and breakaway char .: valve Volt: -Shutoff electromagnet Volt: 12 1nd speed 1/min: 700 Charge-air pressure-setting Supply pump pressure characteristic: point hPa: 600 LDA-stroke mm: 6.4 1st speed 1/min: 500 KSB/AFB Charge press. hPa: 1000 valve Volt: 12

Shutoff		+	Shutoff
<pre>electromagnet Volt:</pre>	12	+	electromagnet volt: 12
Del. quantity cm3/:	70.5071.50	+	KSB/AFB
1000s.:	(67.0075.00)	+	valve Volt: 12
2nd speed 1/min:	1500	+	* · · · · · · · · · · · · · · · · · · ·
Charge press. hPa:		1	Electr. shutoff:
KSB/AFB	1000	1	etecti i siidtoiti.
valve Volt:	12	1	1st speed 1/min: 350
Shutoff	16	T	
	43	T	Del. quantity cm3/: 0.003.00
electromagnet Volt:		†	1000s.: (0.003.00)
Del. quantity cm3/:	0.003.00	+	Shutoff
10005.:	(0.003.00)	+	electromagnet volt: -
3rd speed 1/min:		+	KSB/AFB
Charge press. hPa:	1000	+	valve Volt: 12
KSB/AFB		+	
valve Volt:	12	 _	Idle delivery:
Shutoff		1	
electromagnet Volt:	12	1	1st speed 1/min: 350
Del. quantity cm3/:	15 00 45 00	1	KSB/AFB
10008	(15.0045.00)	1	valve Volt: 12
5th speed 1/min:		T	
		1	Shutoff
Charge press. hPa:	1000	†	electromagnet Volt: 12
KSB/AFB	40	+	Del. quantity cm3/: 7.5011.50
valve Volt:	12	+	1000\$.: (4.5014.50)
Shutoff		+	Dispersion cm3/: 5.5
<pre>electromagnet Volt:</pre>	12	+	1000s.: (7.0)
Del. quantity cm3/:	54.0060.00	+	2nd speed 1/min: 400
1000s.:	(51.0063.00)	+	KSB/AFB
9th speed 1/min:	1250	1	valve Volt: 12
Charge press. hPa:		1	Shutoff
KSB/AFB	. 355	1	electromagnet Volt: 12
valve Volt:	12	T	
Shutoff	16	T	Del. quantity cm3/: 0.006.00
	10	+++++++++++++++++++++++++++++++++++++++	1000s.: (0.006.00)
electromagnet Volt:	16	†	
Del. quantity cm3/:	69.50/0.50	+	Automatic starting fuel delivery:
	(67.0073.00)	+	
12th speed 1/min:		+	1st speed 1/min: 150
Charge press. hPa:	1000	+	KSB/AFB
KSB/AFB		+	valve Volt: 12
valve Volt:	12	+	Shutoff
Shutoff		1	electromagnet Volt: 12
electromagnet Volt:	12	1	Del. quantity cm3/: 80.00
Del. quyntity cm3/:		1	10008.: -
	(70.5076.50)	Ι	10003
18th speed 1/min:		T	2nd speed 1/min: 280
Charge press. hPa:		T	
	_	†	KSB/AFB
KSB/AFB	42	†	valve Volt: 12
valve Volt:	12	+	Shutoff
Shutoff	••	+	electromagnet Volt: 12
electromagnet Volt:		+	Del. quantity cm3/: 80.00
Del. quantity cm3/:		+	1000s.: -
1000s.:	(40.0048.00)	+	
		+	4th speed 1/min: 100
Mech. shutoff:		+	KSB/AFB
Mech. Abstellung:		1	valve Volt: 12
		1	Shutofí
1st speed 1/min:	1250	1	electromagnet Volt: 12
Charge press. hPa:	**************************************	Ι	
		T	Del. quantity cm3/: 90.00
Del. quantity cm3/:		Ŧ	1000S.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 mm: KOT mm: 1.6...1.9 mm: 1.6...1.9 svs max. mm: 2.4 LDA stroke Ya mm: 34.8...38.8 mm: 40.9...46.3

Operate control lever after each manifold pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

* Unscrew KSB ball valve 2 mm

Note inst. in remarks column

Test scheet Edition : 03.94 Calibrating oil : ISO-4113

Injection pump : VE4/12F1300R558 Type number : 0 450 424 100

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : Phaser 135 TI "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Openina |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Speed Charge press. hPa: 1500

Setting value mm: 1.60...1.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 900 Speed Charge press hPa: 1500 Setting value bar: 6.30...6.90

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

Speed 1/min: 1000 Charge press. hPa: 1500

Del. quantity cm3/ 1000s.: 90.50...91.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000s.: (4.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 60.50...61.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 8.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1450 Speed Charge press hPa: 1500 Del. quantity cm3/

1000s.: 65.00...69.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 100.00...160.00

mind 1000s.: 100.0

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000 Charge press

hPa: 1500 mm: 2.50...3.10 TD travel

mm: (2.10...3.50)

J03

Shutoff	+	1nd speed 1/min:	700
electromagnet Volt: 24	+	Charge-air pressure-	-setting
3rd speed 1/min: 900	+	point hPa:	650
Charge press hPa: 1500	+	Shutoff	
TD travel mm: 1.601.80	1	electromagnet Volt:	24
mm: (1.202.20)	1	Del. quantity cm3/:	79.0080.00
Shutoff	1		(76.5082.50)
electromagnet Volt: 24	1	2nd speed 1/min:	
4th speed 1/min: 800	1	Charge press. hPa:	
Charge press hPa: 1500	1	Shutoff	1300
TD travel mm: 0.401.00	j.	electromagnet Volt:	24
mn: (0.101.30)	1	Del. quantity cm3/:	
Shutoff	1		(0.003.00)
electromagnet Volt: 24	1	3rd speed 1/min:	
5th speed 1/min: 1300	I	Charge press. hPa:	
Charge press. hPa: 1500	I	Shutoff	טטלו
TD travel mm: 3.003.60	T		2/
mm: (2.604.00)	T	electromagnet Volt:	
Shutoff	T	Del. quantity cm3/:	
	T		(25.0045.00)
electromagnet Volt: 24	T	5th speed 1/min:	
Country man appropriate the contract of the	†	Charge press. hPa:	1500
Supply-pump pressure characteristic:	†	Shutoff	0/
1at amond 1/min. 1700	†	electromagnet Volt:	
1st speed 1/min: 1300	†	Del. quantity cm3/:	
Charge press. hPa: 1500	†		(61.0073.00)
Supply-pump	+	9th speed 1/min:	
pressure ban: 8.008.60	†	Charge press. hPa:	1500
Shutoff	†	Shutoff	
electromagnet Volt: 24	†	electromagnet Volt:	
2nd speed 1/min: 900	+	Del. quantity cm3/:	
Charge press. hPa: 1500	+		(98.50105.50)
Supply-pump	+	12th speed 1/min:	1000
pressure bar: 6.306.90	+	Charge press. hPa:	1500
Shutoff	+	Shutoff	
electromagnet Volt: 24	+	electromagnet Volt:	24
3rd speed 1/min: 500	+	Del. quyntity cm3/:	90.5091.50
Charge press. hPa: 1500	+		(88.0094.00)
Supply-pump	+	16th speed 1/min:	700
pressure bar: 4.505.10	+	Charge press. hPa:	
Shutoff	+	Shutoff	
electromagnet Volt: 24	+	electromagnet volt:	24
	+	Del. quantity cm3/:	
Overlow quantity at overflow valve:	+		(56.0063.00)
•	+	18th speed 1/min:	
1st speed 1/min: 700	+	Charge press. hPa:	
Charge press. hPa: 1500	+	Shutoff	
Shutoff	+	electromagnet Volt:	24
electromagnet Volt: 24	1	Del. quantity cm3/:	60.5061.50
Overflow : 41.7086.10	1	1000s	(58.0064.00)
quantity cm3/10s: (26.70101.10)	1	20th speed 1/min:	700
2nd speed 1/min: 1300	1	Charge press. hPa:	
Charge press. hPa: 1500	1	Shutoff	. 200
Shutoff	1	electromagnet Volt:	24
electromagnet Volt: 24	1	Del. quantity cm3/:	
Overflow : 55.60139.00	1		(86.5093.50)
quantity cm3/10s: (40.60154.00)	1	10005	(00.20/3.20/
	1	Mech. shutoff:	
Delivery-quant. and breakaway char.:		Mech. Abstellung:	
	1	inciii musicilliig.	
	1	1st speed 1/min:	1300
	1		, 550

Charge press. hPa: 1500 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 24 Electr. shutoff: 1st speed 1st speed 1/min: 300 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 300 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 8.00...12.00 1000s.: (5.00...15.00) cm3/: 5.0Dispersion 1000s.: (5.0) 1/min: 400 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 100.00...160.00 1000s.: (100.00...160.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 35.00...75.00 1000s.: (35.00...75.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 100.00...160.00 1000s.: (100.00...160.00) Shutoff electromagnet: Cut-in min voltage : 20.0 Rated voltage : 24.0 Mounting and assembly dimensions:

mm: 3.6...3.8

mm: KOT

MS1 mm: 1.0...1.4 Ya mm: 31.5...33.5 Yb mm: 52.9...61.5

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

J05

KF

Designation

Note inst. in remarks column

: CUM Test scheet Edition : 02.94 replaces : 11.86 Calibrating oil : ISO-4113

Injection pump : VE5/12F1400R232 Type number : 0 460 426 077

Customer Part-No. :

Customer-specific information

Customer

: 6 BT-5.9 AUTO Engine

Power KW: 118 1/min: 1400 Speed

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

 $(from BDC): \leftarrow 0.02(0.04)$

Start of delivery block Piston stroke

mm: +-0.02(0.06)

Outlet

Injection-pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 900 Charge press. hPa: 1000

Setting value mm: 4.20...4.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900 Charge press hPa: 1000

Setting value bar: 4.10...4.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 900 Speed Charge press. hPa: 1000

Dei. quantity cm3/ 1000s.: 67.00...68.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 30.50...31.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 360

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1530 Charge press hPa: 1000 Del. quantity cm3/

1000s.: 49.00...55.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 45.00...105.00

1000s.: 45.00

J06

Shutoff electromagnet Volt:	12	‡	Overflow : quantity cm3/10s:	55.60139.00 (40.60154.00)
Inspection-pump tes Test specifications		‡	Delivery-quant. and	breakaway char.
Timing device chara	cteristic:	‡	1nd speed 1/min:	
2nd speed 1/min:	1100	†	Charge-air pressure	
	1000	Ī	point hPa: LDA-stroke mm:	6.7
	5.506.30	I	Shutoff	0.7
	(5.206.60)	1	electromagnet Volt:	12
Shutoff		+	Del. quantity cm3/:	58.50 59.50
electromagnet Volt:		+	1000s.:	(55.0063. 00)
3rd speed 1/min:		+	2nd speed 1/min:	
	1000	†	Charge press. hPa:	1000
	4.204.60 (3.705.10)	†	Shutoff	13
Shutoff	(3.703.10)	1	electromagnet Volt: Del. quantity cm3/:	
electromagnet Volt:	12	Ţ		(0.003.00)
4th speed 1/min:		1	4th speed 1/min:	
	1000	+	Charge press. hPa:	
TD travel mm:	0.401.20	+	Shutoff	
	(0.101.50)	+	electromagnet Volt:	
Shutoff	40	+	Del. quantity cm3/:	
electromagnet Volt:	12	†		(15.0055.00)
Complete management		†	5th speed 1/min:	
Supply-pump pressure	e characteristic:	†	Charge press. hPa:	1000
2nd speed 1/min:	500	Ī	Shutoff	10
	1000	I	electromagnet Volt: Del. quantity cm3/:	
Supply-pump	1550	I		(46.0058.00)
	2.403.00	1	9th speed 1/min:	
Shutoff		+	Charge press. hPa:	
electromagnet Volt:		+	Shutoff	
3rd speed 1/min:		+	electromagnet Volt:	
	1000	+	Del. quantity cm3/:	
Supply-pump	/ 10 / 70	†		(60.0066.00)
pressure bar: Shutoff	4.104.70	†	10th speed 1/min:	
electromagnet Volt:	12	Ī	Charge press. hPa: Shutoff	1000
4th speed 1/min:		Ι	electromagnet Volt:	12
Charge press. hPa:		1	Del. quantity cm3/:	
Supply-pump		+		(62.5069.50)
	6.106.70	+	12th speed 1/min:	
Shutoff		+	Charge press. hPa:	
electromagnet Volt:	12	+	Shutoff	
0		†	electromagnet Volt:	
Overlow quantity at	overflow valve:	†	Del. quyntity cm3/:	67.0068.00
1st speed 1/min.	500	†		(64.5070.50)
1st speed 1/min: Charge press. hPa:		Ť	18th speed 1/min:	
Shutoff		I	Charge press. hPa: Shutoff	_
electromagnet Volt:	12	Ţ	electromagnet Volt:	12
Overflow :	41.7083.40	1	Del. quantity cm3/:	30.5031.50
quantity cm3/10s:	(26.7098.40)	+	1000s.:	(27.0035.00)
2nd speed 1/min:	1400	+	20th speed 1/min:	
Charge press. hPa:	1000	+	Charge press. hPa:	
Shutoff	4.5	+	Shutoff	
electromagnet Volt:	72	+	electromagnet Volt:	12

Del. quantity cm3/: 64.50...72.50 1000s.: -Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1400 Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3 00) Shutoff electromagnet volt: 12 Electr. shutoff: 1st speed 1/min: 360 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 360 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.00...14.00 1000s.: (6.00...16.00) Dispersion cm3/: 5.5 1000S.: (7.0) 2nd speed 1/min: 450 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) Automatic starting fuel delivery: 1/min: 300 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 55.00...115.00 1000s.: (55.00...115.00) 2nd speed 1/min: 480 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...55.00 1000s.: (15.00...55.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...105.00 1000s.: (45.00...105.00) Shutoff electromagnet:

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: 5.0...5.4
MS mm: 1.1...1.5
SVS max. mm: 1.5
LDA stroke mm: 6.7

Ya mm: 35.8...37.8 Yb mm: 40.2...45.6

Remarks:

: C.D.C. # 390 8197

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

J08

Cut-in

min voltage : 10.0

Note inst. in remarks column

Test scheet : NIS

Edition : 20.09.93 : 18.01.89 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F14JOR325 Type number : 0 460 426 117

Customer Part-No. :

Customer-specific information Customer : NISSAN

Engine : M 36 TC 125KW

TEST BENCH REQUIREMENTS

Calibrating-oil

return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Opening

bar: 207.00...210.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

mm: 840 x Length

Start of delivery Prestroke mm: -

(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed Charge press. hPa: 1000

Setting value mm: 2.10...2.50

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Charge press hPa: 1000

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 800 Speed Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 96.00...97.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 68.50...69.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 16.50...20.50

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1600 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 34.00...40.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100

Del. quantity cm3/: 100.00...150.00

mind 1000s.: 100.0

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

	1000	+	Shutoff	7.2
mm:	2.10 2.50 (1. 60. 3.00)	‡	electromagnet Volt: Del. quantity cm3/:	81.0082.00
Shutoff	2/	Ť		(78.5084.50)
electromagnet Volt:		†	2nd speed 1/min:	
4th speed 1/min:		†	Charge press. hPa:	1000
	1000	+	Shutoff	
	0.701.50	+	electromagnet Volt:	
	(0.40 1.80)	+	Del. quantity_cm3/:	
Shutoff		+		(0.003.00)
electromagnet Volt:		+	5th speed 1/min:	16 0 0
5th speed 1/min:		+	Charge press. hPa:	1000
	1000	+	Shutoff	
TD travel mm:	3.70 4.50	+	electromagnet Volt:	24
mm:	(3.40 4.80)	+	Del. quantity cm3/:	
Shutoff	•	1.		(31.0043.00)
electromagnet Volt:	24	1	9th speed 1/min:	
		1	Charge press. hPa:	
Supply-pump pressure	e characteristic:	1	Shutoff	1000
color ty party process.	o that accerts the	1	electromagnet Volt:	24
1st speed 1/min:	1400	1	Del. quantity cm3/:	
	1000	Ι		(82.0088.00)
Supply-pump	1000	T	10th speed 1/min:	
pressure bar:	7.908.50	T		
Shutoff	7.700.30	Ť	Charge press. hPa:	1000
-	2/	†	Shutoff	21
electromagnet Volt:		†	electromagnet Volt:	
2nd speed 1/min:		†	Del. quantity cm3/:	96.0097.00
Charge press. hPa:	1000	†		(93.5099.50)
Supply-pump	((0 7 00	†	18th speed 1/min:	
	6.607.20	+	Charge press. hPa:	-
Shutoff	0.4	†	Shutoff	
electromagnet Volt:		†	electromagnet Volt:	
3rd speed 1/min:		+	Del. quantity cm3/:	
Charge press. hPa:	1000	+	1000s.:	(66.0072.00)
Supply-pump		+		
•	3.804.40	+	Mech. shutoff:	
Shutoff		+	Mech. Abstellung:	
electromagnet Volt:	24	+	_	
		+	1st speed 1/min:	1400
Overlow quantity at	overflow valve:	+	Charge press. hPa:	1000
		+	Del. quantity cm3/:	0.003.00
1st speed 1/min:	500	+		(0.003.00)
Shutoff		+	Shutoff	
electromagnet Volt:	24	+	electromagnet volt:	24
Overflow :	75.00119.50	+	5	
quantity cm3/10s:	(60.00134.50)	+	Electr. shutoff:	
2nd speed 1/min:		+		
Charge press. hPa:	1000	+	1st speed 1/min:	350
Shutoff		1	Del. quantity cm3/:	
electromagnet Volt:	24	1	1000s	(0.003.00)
	97.30180.70	1	Shutoff	(0.001113100)
quantity cm3/10s:		1	electromagnet volt:	_
		1	- 1000 Singifice FOLLS	
Delivery-quant. and	breakaway char	1	Idle delivery:	
and the second second second	- Carminay Vilat 11	1	2010 001171	
		1	1st speed 1/min:	350
1nd speed 1/min:	800	1	Shutoff	טרכ
Charge air pressure		I	electromagnet Volt:	24
point hPa:	350	I	etectionagnet vott:	L+
with the	J)(Т		

Del. quantity cm3/: 16.50...20.50 1000s.: (13.50...23.50)

cm3/: 5.0 Dispersion 1000s.: (5.0)

2rid speed 1/min: 450

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 120.00...160.00

1000s.: (95.00...145.00)

1/min: 300 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cn3/: 55.00...75.00 1000s.: (55.00...75.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 100.00...150.00

1000s.: (100.00...150.00)

Shutoff electromagnet:

Cut-in

: 20.0 : 24.0 min voltage Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.5...3.9 K KF mm: K-OT mm: 1.1...1.5 mm: 37.2...39.2 MS Ya mm: 49.3...57.6 Yb

Remarks:

* Correction at adjusting nut

Operate control lever after each manifold-pressure compensator pressure change.

Overflow restriction 0.75 mm - Part No. ..343,...344

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control

lever on distributor-head end

J11

Note inst. in remarks column

Test scheet : CUM : 02.94 : 08.07.92 Edition replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369 Type number : 0 460 426 138

Customer Part-No. :

Customer-specific information Customer : CASE

Engine : 6BT- 5.9 IND.

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

dia er mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet. : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 3.30...3.90

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850

Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/ 1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5

1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1040

Del. quantity cm3/

1000s.: 53.00...59.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...120.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000

TD travel mm: 4.60...5,40 mm: (4.30...5.70)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 750

TD travel mm: 3.00...3.40 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 63.50...66.50 1000S.: (62.00...68.00) mm: (2.50...3.90) Shutoff electromagnet Volt: 24
4th speed 1/min: 500
TD travel mm: 0.90...1.70 1/min: 850 12th speed Shutoff mm: (0.60...2.00)electromagnet Volt: 24 Del. auyntity cm3/: 66.50...67.50 Shutoff 1000s.: (64.00...70.00) 1/min: 750 electromagnet Volt: 24 15th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24
Del. quantity cm3/: 63.00...66.00
1000s.: (61.00...68.00)
20th speed 1/min: 500 1/min: 500 1st speed Supply-pump pressure bar: 2.30...2.90 Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 electromagnet Volt: 24 Del. quantity cm3/: 40.50...48.50 1000s.: (38.50...50.50) Supply-pump bar: 3.30...3.90 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 Mech. Abstellung: 1/min: 1000 3rd speed 1st speed 1/min: 1000 Del. quantity cm3/: 0.00...3.0 Supply-pump bar: 4.50...5.10 pressure Shutoff 1000s.: electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 500 1st speed Shutoff 1/min: 450 ist speed electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 : 41.70...86.10 Overflow 1000s.: (0.00...3.00) quantity cm3/10s: (26.70...101.20) Shutoff 1/min: 1000 2nd speed electromagnet volt: -Shutoff electromagnet Volt: 24 Idle delivery: : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity 1/min: 450 1st speed Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 24 Del. quantity cm3/: 6.00...12.00 1000s.: (4.00...14.00) cm3/: 5.5 1000s.: (7.0) 1/min: 500 2nd speed 1/min: 1120 Dispersion Shutoff 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 3rd speed 1/min: 1060 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.00...55.00 1000s.: (25.00...55.00) Automatic starting fuel delivery: 5th speed 1/min: 1040 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 24
Del. quantity cm3/: 53.00...59.00
1000s.: (50.00...62.00)
9th speed 1/min: 1000 electromagnet Volt: 24 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00)

1/min: 240 2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 5.00...35.00

1000s.: (5.00. .35.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: -

mm: 5.0...5.4 KF

mm: 0.8...1.2 MS

SVS max. mm: 1.2

mm: 18.8...20.8 XK

XL mm: 9.9...13.3 mm: 34.8...38.8 Ya

mm: 38.2...43.4 Yb

Remarks:

: C.D.C. # 391 7563

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

: CUM Test scheet Edition : 02.94 : 10.06.92 replaces Calibrating oil : ISO-4113

: VE6/12F1150R225-23 Injection pump Type number : 0 460 426 143

Customer Part-No. :

Customer-specific information

Customer

Engine : 6 BT -5.9 IND

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Start of delivery block Piston stroke mm: 1.3

mm: +-0.02(0.06)

Outlet.

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 750 Speed

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 750

Setting value bar: 3.50...4.10

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 900

Del. quantity cm3/

1**000s... 71.50....72.**50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 4.0 1000s.: (4.5)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 8.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1190

Del. quantity cm3/

1000s.: 50.00...56.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...120.00

1000s.: 60.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1100 2nd speed

TD travel mm: 5.50...6.30 mm: (5.20...6.60)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 750

TD travel mm: 3.40...3.80 Shutoff mm: (2.90...4.30) Shutoff electromagnet Volt: 12 4th speed 1/min: 500 mm: 1.50...2.30 TD travel Shutoff mm: (1.20...2.60) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 53.00...61.00 1000s.: (51.00...63.00) 1st speed 1/min: 500 Supply-pump pressure bar: 2.40...3.00 Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 750 Mech. Abstellung: 1st speed 1/min: 1150
Del. quantity cm3/: 0.00...3.00 Supply-pump bar: 3.50...4.10 pressure Shutoff 1000s.: (0.00...3.00) Shutoff electromagnet volt: 12 Supply-pump pressure bar: 4.80...5.40 Electr. shutoff: Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1000s.: (0.00...3.00) Shutoff 1st speed 1/min: 500 electromagnet volt: -Shutoff electromagnet Volt: 12 Idle delivery: : 41.70...36.10 cm3/10s: (26.70...101.20) quantity 1/min: 375 1st speed 2nd speed 1/min: 1150 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 8.00...14.00
1000S.: (6.00...16.00)
Dispersion cm3/: 5.5 Shutoff electromagnet Volt: 12 : 55.60...139.00 Overflow quantity cm3/10s: (40.60...154.00) 1000s.: (7.0) Delivery-quant. and breakaway char.: 1/min: 450 2nd speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...4.00
1000S:: (0.00...4.00) 1/min: 1300 2nd speed Shutoff Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff Shutoff electromagnet Volt: 12
Del. quantity cm3/: 15.00...55.00
1000S.: (15.00...55.00) electromagnet Volt: 12 Del. quantity cm3/: 70.00...130.00 1000s.: (70.00...130.00) 1/min: 1190 5th speed Shutoff 1/min: 240 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 20.00...60.00 1000s.: (20.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut -in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: 5.0...5.4
MS mm: 0.8...1.2
SVS max. mm: 1.3
XK mm: 20.2...22.2
XL mm: 11.5...14.9
Ya mm: 35.8...37.8
Yb mm: 41.7...47.1

Remarks:

: C.D.C. # 391 8282 : C.D.C. # 391 6949

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : CUM

Edition : 14.02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1300R386

Type number : 0 460 426 162

Customer Part-No. :

Customer-specific information

Customer

: PERKINS

Engine

: 6.60 PHASER 125

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil

°C return temp.

with thermometer : 40.00...48.00

Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 020 assembly

Openina |

bar: 172.00...175.00 Pressure

Perforated-plate

diameter

mm: 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00

x Length

mm: 840

Start of delivery

Prestroke mm: 0.5

(from BDC): +-0.02(0.04)

Start of delivery block

Piston stroke mm: 1,0

mm: $\leftarrow 0.02(0.06)$

Outlet : C

Injection-pump setting values

Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed

Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Speed

Setting value bar: 5.20...5.80

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

1/min: 1000

Del. quantity cm3/ 1000s.: 76.50...77.50

Shutoff

electromagnet Volt: 24

Dispersion cm3/: 3,5

1000s.: (4.0)

Low-idle speed regulation

Speed 1/min: 300

Del. quantity cm3/

1000s.: 19.50...23.50

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 3.5 1000s.: (3.5)

Full-load speed regulation

Speed 1/min: 1400

Del. quantity cm3/

1000s.: 44.50...50.50

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 75.00...105.00

1000s.: 75.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1300

mm: 2.80...3.60 TD travel

mm: (2.50...3.90)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 1100

TD travel mm: 1.80...2.20 Shutoff mm: (1.30...2.70) electromagnet Volt: 24 Del. quantity cm3/: 69.20...72.80 1000s.: (67.50...74.50) Shutoff electromagnet Volt: 24 4th speed 1/min: 950 11th speed 1/min: 700 mm: 0.40...1.00 TD travel Shutoff mm: (0.00...1.40)Shutoff electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quyntity cm3/: 76.50...77.50 1000s.: (74.00...80.00) 1/min: 500 1st speed Supply-pump bar: 2.70...3.30 1/min: 500 pressure 20th speed Shutoff Shutoff electromagnet Volt: 24
Del. quantity cm3/: 63.50...67.50
1000S.: (62.00...69.00) electromagnet Volt: 24 1/min: 1100 2nd speed Supply-pump bar: 5.20...5.80 pressure Shutoff Mech. shutoff: electromagnet Volt: 24 3rd speed 1/min: 1300 Mech. Abstellung: Supply-pump 1st speed 1/min: 1300 bar: 6.10...6.70 pressure Del. quantity cm3/: 0.00...3.00 **1000s.: (0.00...3.**00) Shutoff electromagnet Volt: 24 Shutoff electromagnet volt: 24 Overlow quantity at overflow valve: Electr. shutoff: 1/min: 500 1st speed Shutoff 1/min: 300 1st speed electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 Overflow : 41.70...83.40 1000s.: (0.00...3.00) quantity cm3/10s: (26.70...98.40) Shutoff 2nd speed 1/min: 1300 electromagnet volt: -Shutoff electromagnet Volt: 24 Idle delivery: : 55.60...139.00 Overflow quantity cm3/10s: (40.60...154.00) 1st speed 1/min: 300 Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 24 Del. quantity cm3/: 19.50...23.50 1000s.: (16.50...26.50) Dispersion cm3/: 3.5 2nd speed 1/min: 1530 1000s.: (3.5) 1/min: 400 Shutoff 2nd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) 1/min: 350 electromagnet Volt: 24
Del. quantity cm3/: 14.00...22.00
1000S.: (11.00...25.00) 3rd speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 4.50...10.50 1000s.: (2.50...12.50) 1/min: 1400 5th speed Shutoff Automatic starting fuel delivery: 1st speed 1/min: 180

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 90.00...120.00

1000s.: (90.00...120.00)

1/min: 250 2nd speed

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 30.00...60.00
1000s.: (30.00...60.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24
Del. quantity cm3/: 75.00...105.00

1000s.: (75.00...105.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: -

KF mm: -

MS mm: 1.2...1.6

mm: 2.8 SVS max.

mm: 37.2...39.2 Ya

mm: 45.2...53.7 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

: STE Test scheet Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R265-3 Type number : 0 460 426 190

Customer Part-No.:

Customer-specific information

Customer : SNF

Engine : WD612.61

Power kw: 100 1/min: 2400 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 800 Speed

Setting value mm: 1.40...1.80

Supply-pump pressure

Speed 1/min: 800

Setting value bar: 5.50...6.10

Full-load del. w/out charge press.:

Speed 1/min: 1000

Del. quantity cm3/

1000s.: 87.00...88.00

Low-idle speed regulation

1/min: 300 Speed

Del. quantity cm3/

1000s.: 16.00...20.00 Del. quantity cm3/: 3.5

1000s.: (3.5)

Full-load speed regulation

1/min: 1275 Speed

Del. quantity cm3/

1000s.: 27.00...33.00

Start:

1/min: 100 Speed

Del. quantity cm3/: 80.00...130.00

1000s.: 80.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 800

mm: 1.40...1.80 TD travel mm: (0.90...2.30)

1/min: 600 4th speed

mm: 0.20...1.00 TD travel

mm: (0.00...1.30)

1/min: 1200 5th speed

mm: 3.10...3.90 TD travel

mm: (2.80...4.20)

Supply-pump pressure characteristic:

1st speed 1/min: 1200

Supply-pump

bar: 7.20...7.80 1/min: 800 pressure

2nd speed

Supply-pump

pressure bar: 5.50...6.10

3rd speed 1/min: 600

Supply-pump

bar: 4.50...5.10 pressure

Overlow quantity at overflow valve:

1st speed 1/min: 550

Overflow : 41.70...83.40 cm3/10s: (26.70...98.40) quantity 2nd speed 1/min: 1200 Overflow : 55.60...139.00 quantity cm3/10s: (40.60...154.00) Delivery-duant. and breakaway char.: 2nd speed 1/min: 1380 Del. quantity cm3/: 0.00...3.00 1600s.: (6.60...3.00) 1/min: 1275 5th speed Del. quantity cm3/: 27.00...33.00 1000s.: (24.00...36.00) 1/min: 1230 8th speed Del. quantity cm3/: 55.00...95.00 1000s.: (55.00...95.00) 9th speed 1/min: 1200 Del. quantity cm3/: 85.00...88.00 1000s.: (84.00...89.00) 12th speed 1/min: 1000 Del. quyntity cm3/: 87.00...88.00 1000s.: (85.00...90.00) 1/min: 550 20th speed Del. quantity cm3/: 74.00...77.00 1000s.: (72.00...79.00) Mech. shutoff: Mech. Abstellung: 1000s.: (0.00...3.00) Idle delivery: 1st speed 1/min: 300
Del. quantity cm3/: 16.00...20.00
1000s.: (14.00...22.00)
Dispersion cm3/: 3.5
1000s.: (3.5)
2nd speed 1/min: 350 Del. quantity cm3/: 4.00...10.00 1000s.: (3.00...11.00) 3rd speed 1/min: 400 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 150 Del. quantity cm3/: 85.00...135.00 1000s.: (85.00...135.00) 1/min: 300 2nd speed Del. quantity cm3/: 55.00...75.00 1000s.: (55.00...75.00)

Del. quantity cm3/: 80.00...130.00 1000s.: (80.00...130.00) Shutoff electromagnet: Cut-in min voltage Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: 5.6...6.0 mm: 1.6...1.9 MS1 mm: 5.7 SVS max. mm: 37.2...38.2 Ya Yb mm: 52.8...61.2 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : CAS Edition : 02.94 replaces : 09.12.91 Calibrating oil : ISO-4113

Injection pump : VE6/12F1000R369-2 Type number : U 460 426 196

Customer Part-No. :

Customer—specific information Customer : CASE

Engine : 6T 59D

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. *C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening |

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

Prestroke mm: 0.3

(from BDC): +0.02(0.04)

Start of delivery block Piston stroke mm: 1.5

mm: +-0.02(0.06)

Outlet : D

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 750

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 750

Setting value bar: 3.30...3.90

Shutoff

electromagnet Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 850

Del. quantity cm3/

1000s.: 66.50...67.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 4.0 1000S.: (4.5)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 6.00...12.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1040

Del. quantity cm3/

1000s.: 53.00...59.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100

Del. quantity cm3/: 60.00...120.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000

TD travel mm: 4.60...5.40 mm: (4.30...5.70)

Shutoff

electromagnet Volt: 24 3rd speed 1/min: 750

mm: 3.00...3.40 TD travel Shutoff mm: (2.50...3.90)electromagnet Volt: 24 Del. quantity cm3/: 63.50...66.50 1000S.: (62.00...68.00) 12th speed 1/min: 850 Shutoff electromagnet Volt: 24 1/min: 500 4th speed mm: 0.90...1.70 TD travel Shutoff mm: (0.60...2.00)electromagnet Volt: 24 Del. quyntity cm3/: 66.50...67.50 Shutoff 1000S.: (64.00...70.00) 15th speed 1/min: 750 electromagnet Volt: 24 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 24 Del. quantity cm3/: 63.00...66.00 1000s.: (61.00...68.00) 1/min: 500 1st speed Supply-pump bar: 2.30...2.90 1/min: 500 pressure 20th speed Shutoff Shutoff electromagnet Volt: 24 2nd speed 1/min: 750 electromagnet Volt: 24 Del. quantity cm3/: 40.50...48.50 2nd speed Supply-pump 1000s.: (38.50...50.50) pressure bar: 3.30...3.90 Shutoff Mech. shutoff: electromagnet Volt: 24 1/min: 1000 3rd speed Electr. shutoff: Supply-pump pressure bar: 4.50...5.10 1st speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 24 1000s.: (0.00...3.00) Shutoff Overlow quantity at overflow valve: electromagnet volt: -1/min: 500 1st speed Idle delivery: Shutoff electromagnet Volt: 24 1/min: 450 1st speed : 41.70...86.20 Overflow Shutoff cm3/10s: (26.70...101.20) quantity electromagnet Volt: 24 1/min: 1000 Del. quantity cm3/: 6.00...12.00 1000S.: (4.00...14.00) 2nd speed Shutoff cin3/: 5.5 1000s.: (7.0) electromagnet Volt: 24 Dispersion : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity 2nd speed 1/min: 500 Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 24 Del. quantity cm3/: 0.00...4.00 1000s.: (0.00...4.00) 1/min: 1120 2nd speed Shutoff Automatic starting fuel delivery: electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 1060 1/min: 130 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 70.00...130.00 10005.: (70.00...130.00) Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.00...55.00 1000s.: (25.00...55.00) 2nd speed 1/min: 240 1/min: 1040 5th speed Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 5.00...35.00 1000s.: (5.00...35.00) electromagnet Volt: 24 Del. quantity cm3/: 53.00...59.00 1000s.: (50.00...62.00) 1/min: 1000 9th speed 4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...120.00 1000s.: (60.00...120.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : NIS Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R325-2 Type number : 0 460 426 206

Customer Part-No. :

Customer-specific information Customer : NISSAN-MISA

Engine : HX 150 "DI"

Power kw: 119.5 Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Openina |

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1000 Setting value mm: 1.60...2.00

Shutoff

electromagnet Volt: 12

Supply-bump pressure

1/min: 1100 Speed

Charge press hPa: 1000 Setting value bar: 7.20...7.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 800 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 92.00...93.00

Shutoff

electromagnet Volt: 12 cm3/: 5.0 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 82.50...83.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1300 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 44.00...50.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 100.00...150.00

1000s.: 100.0 mind

Shutoff

electromagnet Volt: 12

Inspection—pump test specifications Test specifications in parentheses

J26

		+		
Timing-device characteristics	cteristic:	1	1nd speed 1/min:	800
5		1	Charge-air pressure	
2nd speed 1/min:	1200	1	point hPa:	
	1000	1		5.2
	2.303.10	1	Shutoff	
	(2.003.40)	1	electromagnet Volt:	12
Shutoff	12(00) (0)	1	Del. quantity cm3/:	85 00 . 86 00
electromagnet Volt:	12	1		(81.5089.50)
3rd speed 1/min:	1100		2nd speed 1/min:	
	1000	1	Charge press. hPa:	
	1.602.00	1	Shutoff	1000
mm.	(1.102.50)	I.	electromagnet Volt:	12
Shutoff	(1.101.12.30)	1	Del. quantity cm3/:	חמיד חח
electromagnet Volt:	12	Ι	1000	(0.003.00)
4th speed 1/min:	1000	T	3rd speed 1/min:	
Charge press hPa:		T		
	0.501.30	T	Charge press. hPa: Shutoff	1000
	(0.201.60)	T		12
Shutoff	(0.201.00)	T	electromagnet Volt:	0.00 40.00
	13	†	Del. quantity cm3/:	
electromagnet Volt:	12	†	10005.:	
Committee and a management		†	5th speed 1/min:	
Supply-pump pressure	e characteristic:	+	Charge press. hPa:	1000
1-4 1 1/	1200	†	Shutoff	45
1st speed 1/min:		†	electromagnet Volt:	
Charge press. hPa:	1000	+	Del. quantity cm3/:	
Supply-pump	7.05 0.40	+	1000s.:	
	7.808.40	+	8th speed 1/min:	
Shutoff	4.0	+	Charge press. hPa:	1000
electromagnet Volt:		+	Shutoff	
2nd speed 1/min:		+	electromagnet Volt:	
Charge press. hPa:	1000	+	Del. quantity cm3/:	63.0083.00
Supply-pump		+	1000s.:	***
pressure bar:	7.207.80	+	9th speed 1/min:	1200
Shutoff		+	Charge press. hPa:	1000
electromagnet Volt:	12	+	Shutoff	
3rd speed 1/min:	500	+	electromagnet Volt:	12
Charge press. hPa:	1000	+	Del. quantity cm3/:	
Supply-pump		1		(83.0090.00)
	4.304.90	1	12th speed 1/min:	
Shutoff		1	Charge press. hPa:	
electromagnet Volt:	12	1	Shutoff	
5 • • • • • • • • • • • • • • • • • • •	· -	1	electromagnet Volt:	12
Overlow quantity at	overflow valve:	1	Del. quyntity cm3/:	
		1		(89.5095.50)
1st speed 1/min:	500	1	18th speed 1/min:	
Charge press. hPa:		1	Charge press. hPa:	
Shutoff	, 500	L	Shutoff	
electromagnet Volt:	12	1	electromagnet Volt:	12
	75.00119.50	Ι	Del. quantity cm3/:	
quantity cm3/10s:		L	10000	(80.0086.00)
2nd speed 1/min:		I	20th speed 1/min:	500
Charge press. hPa:		Ι		
Shutoff	1000	T	Charge press. hPa: Shutoff	TOUC
electromagnet Volt:	12	T		12
Overflow :	97.30180.70	T	electromagnet Volt:	
quantity cm3/10s:		T	Del. quantity cm3/:	
quarterty tills:	(02.30173.70)	T	1000s.:	_
not from meriant and	broata a chan	†		
Delivery-quant. and	DI Editaway Char.:	T	0-14	hamania
		+	Delivery-quant. and	preakaway char.:

Inj.-qty.values, temp.-compensated temperatura

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 77.00...83.00 1000s.: (80.00...80.00)

Mech. shutoff: Mech. Abstelling:

1st speed 1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00

1000s.: -

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 400

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 13.00...17.00

1000s.: (10.00...20.00)

Dispersion cm3/: 5.0

1000s.: (5.0)

1/min: 480 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 120.00...170.00 1000s.: -

2nd speed 1/min: 300

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 60.00...90.00

1000s.: -

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 105.00...155.00 1000s.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.7...3.9 KF mm: KOT

MS mm: 1,4...1.6

SVS max. mm: 4.4 LDA stroke mm: 5.2

mm: 37.9...39.9 Ya Yb mm: 52.2...60.6

Remarks:

Operate control lever after each manifold pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Values without check tolerance do not apply when checking pump.

Note inst. in remarks column

Test scheet : NIS Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R325~3 Type number : 0 460 425 207

Customer Part-No. :

Customer-specific information Customer : NISSAN-MISA

: HX 130 "DT" Engine

KW: 103 Power 1/min: 2400 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Openina |

bar: 207.00...210.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Charge press. hPa: 1000 Setting value mm: 1.80...2.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 900 Charge press hPa: 1000

Setting value bar: 6.30...6.90

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800 Charge press. hPa: 1000 Dei. quantity cm3/

1000s.: 77.50...78.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 73.00...74.00

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1300 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 48.00...54.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 100.00...150.00

1000s.: 100.0

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

K01

Timing-device charac	cteristic:	+	1nd speed 1/min:	
On all accounts of the	4200	+	Charge-air pressure	
2nd speed 1/min:		†	point hPa:	
Charge press hPa:	7 70 / 50	†		5.2
To travel mm:	3.704.50	t	Shutoff	
	(3.205.00)	+	electromagnet Volt:	12
Shutoff	40	†	Del. quantity cm3/:	74.0075.00
electromagnet Volt:		+		(70.5078.50)
3rd speed 1/min:		+	2nd speed 1/min:	
	1000	+	Charge press. hPa:	1000
	1.802.20	+	Shutoff	
	(1.302.70)	+	electromagnet Volt:	
Shutoff		+	Del. quantity cm3/:	0.003.00
electromagnet Volt:	12	+	1000s.:	(0.003.00)
4th speed 1/min:		+	3rd speed 1/min:	1330
Charge press hPa:		+	Charge press. hPa:	1000
TD travel mm:	0.401.20	+	Shutoff	
mm:	(0.101.50)	+	electromagnet Volt:	12
Shutoff		+	Del. quantity cm3/:	
electromagnet Volt:	12	+		(0.0010.00)
3		1	5th speed 1/min:	
Supply-pump pressure	e characteristic:	1	Charge press. hPa:	
		1	Shutoff	,000
1st speed 1/min:	1200	1	electromagnet Volt:	12
Charge press. hPa:		1	Del. quantity cm3/:	
Supply-pump	1000	Ι	1000s.:	
pressure bar:	7.708.30	I	8th speed 1/min:	
Shutoff	7.700.50	Ι		
electromagnet Volt:	12	T	Charge press. hPa: Shutoff	1000
2nd speed 1/min:		T		10
Charge press. hPa:		T	electromagnet Volt:	12 55 00 75 00
	1000	T	Del. quantity cm3/:	
Supply-pump	6.306.90	Τ	10005.:	
pressure bar: Shutoff	0.300.90	Ť	9th speed 1/min:	
	12	Ť	Charge press. hPa:	1000
electromagnet Volt:		†	Shutoff	42
3rd speed 1/min:		†	electromagnet Volt:	
Charge press. hPa:	1000	†	Del. quantity cm3/:	
Supply-pump	/ /0	†	10005.:	(65.5072.50)
	4.405.00	†	12th speed 1/min:	
Shutoff	43	†	Charge press. hPa:	1000
electromagnet Volt:	12	†	Shutoff	
A	. .	+	electromagnet Volt:	
Overlow quantity at	overtiow valve:	†	Del. quyntity cm3/:	
<i>A</i>	500	†		(75.0081.00)
1st speed 1/min:		†	18th speed 1/min:	
Charge press. hPa:	1000	+	Charge press. hPa:	-
Shutoff		+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	
Overflow :		+	Del. quantity cm3/:	
quantity cm3/10s:		+		(70.5076.50)
2nd speed 1/min:		+	20th speed 1/min:	500
Charge press. hPa:	1000	+	Charge press. hPa:	
Shutoff		+	Shutoff	
electromagnet Volt:		+	electromagnet Volt:	12
Overflow:	97.30180.70	+	Del. quantity cm3/:	
quantity cm3/10s:		+	1000s.:	
•		+		
Delivery-quant. and	breakaway char.:	+	Mech. shutoff: Mech. Abstellung:	

1st speed 1/min: 1200 Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 12

Electr. shutoff:

1st speed 1/min: 400 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 400

Shutoff

electromagnet Volt: 12 Del. quantity_cm3/: 13.00...17.00

1000s.: (10.00...20.00)

cm3/: 5.0 Dispersion

1000s.: (5.0)

2nd speed 1/min: 480

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1/min: 200 1st speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 115.00...165.00

1000s.: (115.00...165.00)

1/min: 300 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 55.00...85.00 1000s.: (55.00...85.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 100.00...150.00

1000s.: (100.00...150.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.7...3.9 mm: KOT

KF MS mm: 1.3...1.7

LDA stroke

mm: 5.2 mm: 37.9...39.9 Ya mm: 52.1...60.5 Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet

Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1200R491 Type number : 0 460 426 208

Customer Part-No. :

Customer-specific information Customer : NISSAN-MISA

Engine : HX 110 "DI"

Power KW: 87 Speed 1/min: 1200

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 109

Opening

bar: 207.00...210.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 900

Setting value mm: 2.10...2.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900 Speed

Setting value bar: 6.30...6.90

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 800

Del. quantity cm3/

1000s.: 63.50...64.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 5.0

1000s.: (5.0)

Low-idle speed regulation

Speed 1/min: 400

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 5.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1270

Del. quantity cm3/

1000s.: 29.00...35.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 90.00...140.00

1000s.: 90.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1/min: 1200 2nd speed

mm: 3.70...4.50 TD travel

mm: (3.40...4.80)

Shutoff

electromagnet Volt: 12

3rd speed 1/min: 900 mm: 2.10...2.50 TD travel

mm: (1.60...3.00)

K04

Del. quyritity cm3/: 63.50...64.50 1000\$.: (61.00...67.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 700 20th speed 1/min: 500 mm: 0.40...1.20 TD travel Shutoff mm: (0.10...1.50) electromagnet Volt: 12 Shutoff Del. quantity cm3/: 61.50...64.50 electromagnet Volt: 12 1000s.: (60.00...66.00) Supply-pump pressure characteristic: Mech. shutoff: Mech. Abstellung: 1st speed 1/min: 1200 Supply-pump bar: 7.70...8.30 pressure Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 2nd speed 1/min: 900 Shutoff electromagnet volt: 12 Supply-pump bar: 6.30...6.90 pressure Electr. shutoff: Shutoff electromagnet Volt: 12 1st speed 1/min: 400 1/min: 500 3rd speed Del. quantity cm3/: 0.00...3.00 Supply-pump 1000s.: (0.00...3.00) bar: 4.40...5.00 pressure Shutoff Shutoff electromagnet volt: electromagnet Volt: 12 Idle delivery: Overlow quantity at overflow valve: 1/min: 400 1st speed 1st speed 1/min: 500 Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 Overflow : 75.00...119.50 1000s.: (10.00...20.00) cm3/: 5.0 1000s.: (5.0) 1/min: 500 cm3/10s: (60.00...134.50) quantity Dispersion 1/min: 1200 2nd speed Shutoff 2nd speed electromagnet Volt: 12 Shutoff : 97.30...180.70 Overflow electromagnet Volt: 12 cm3/10s: (82.30...195.70) Del. quantity cm3/: 0.00...3.00 quantity 1000s.: (0.00...3.00) Delivery-quant. and breakaway char.: Automatic starting fuel delivery: 1/min: 1350 2nd speed 1st speed 1/min: 200 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 105.00...155.00 1000s.: electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 5th speed 1/min: 1270 Shutoff 2nd speed 1/min: 300 electromagnet Volt: 12 Del. quantity cm3/: 29.00...35.00 Shutoff electromagnet Volt: 12 1000s.: (25.00...39.00) Del. quantity cm3/: 45.00...75.00 1/min: 1200 9th speed 1000s.: -Shutoff electromagnet Volt: 12 1/min: 100 4th speed Del. quantity cm3/: 57.50...60.50 Shutoff 1000s.: (56.00...62.00) 1/min: 800 electromagnet Volt: 12 12th speed Del. quantity cm3/: 90.00...140.00 Shutoff 1000s.: electromagnet Volt: 12

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.7...3.9
KF mm: KOT
MS mm: 1.3...1.7
SVS max. mm: 5.5
LDA stroke mm: 5.2
Ya mm: 37.9...39.9
Yb mm: 48.8...57.2

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : MAN Edition : 02.94 : 15.02.93 replaces Calibrating oil : ISO-4113

Injection pump : VE6/12F12COR496 Type number : 0 460 426 209

Customer Part-No. :

Customer-specific information

Customer

: D 0826 LF 07 "DI" Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 110

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery

mm: 0.2 Prestroke

(from BDC): +-0.02(0.04)

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 850 Charge press. hPa: 1000

Setting value mm: 2.00...2.40

Supply-pump pressure

1/min: 850 Speed Charge press hPa: 1000

Setting value bar: 7.30...7.90

Full-load del. with charge press.:

1/min: 1000 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 91.50...92.50 Dispersion cm3/: 4.0 1000s.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 59.50...60.50

Low-idle speed regulation

Speed 1/min: 250

Del. quantity cm3/ 1000s.: 16.50...23.50 Del. quantity cm3/: 6.0 1000s.: (6.5)

Full-load speed regulation

1/min: 1280 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 62.00...68.00

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...100.00

1000s.: 60.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 950 Charge press

hPa: 1000 mm: 2.90...3.70 TD travel

mm: (2.60...4.00) 1/min: 850

3rd speed Charge press

hPa: 1000 mm: 2.00...2.40 mm: (1.50...2.90) TD travel

1/min: 750 4th speed hPa: 1000 Charge press

mm: 0.60...1.40 TD travel

mm: (0.30...1.70)

Supply-pump pressure characteristic:

K07

		1	Del. quantity cm3/: 92.1097.10
1st speed 1/min:	500	+	10005.: (90.6098.60)
Charge press. hPa:		+	17th speed 1/min: 600
Supply-pump		+	Charge press. hPa: 1000
pressure bar:	5.506.10	+	Del. quantity cm3/: 98.50103.50
Zria speed 1/inin:	850	+	1000H.: (97.00105.00)
Charge press. hPa:	1000	+	18th speed 1/min: 500
Supply-pump		+	Charge press. hPa: -
pressure bar:	7.307.90	+	Del. quantity cm3/: 59.5060.50 1000s.: (57.5062.50)
3rd speed 1/min:		+	1000s.: (57.5062.50)
Charge press. hPa:	1900	+	20th speed 1/min: 500
Supply-pump		+	Charge press. hPa: 1000
pressure bar:	9.009.60	+	Del. quantity cm3/: 102.10111.10
0.5=1.5	C	+	1000s.: (100.60112.60)
Overlow quantity at	overflow valve:	+	
1-+ 1 /		†	Mech. shutoff:
1st speed 1/min:		†	Mech. Abstellung:
Charge press. hPa:		†	4 4 4 4 4000
Overflow:	41.7080.10	†	1st speed 1/min: 1200
quantity cm3/10s:	(26.70101.10)	†	Charge press. hPa: 1000
2nd speed 1/min:		†	Del. quantity cm3/: 0.003.00
Charge press. hPa:		Ť	1000s.: (0.003.00)
Overflow :		†	7-11
quantity cm3/10s:	(40.00()4.00)	†	Idle delivery:
Delivery-quant. and	hankausy chan	†	1st speed 1/min. 250
becivery-quant. and	breakaway Char	Ť	1st speed 1/min: 250
		T	Del. quantity cm3/: 16.5023.50
1nd speed 1/min:	500	T	1000S.: (14.5025.50) Dispersion cm3/: 6.0
Charge-air pressure		T	Dispersion cm3/: 6.0 1000S.: (6.5)
point hPa:		T	
LDA-stroke mm:		T	2nd speed 1/min: 400
Del. quantity cm3/:		Ţ	Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)
	(90.5095.50)	T	10005.: (0.005.00)
2nd speed 1/min:		I	Automatic stanting fuel delivery
Charge press. hPa:		Ι	Automatic starting fuel delivery:
Del. quantity cm3/:		Ι	1st speed 1/min: 330
	(0.003.00)	1	Del. quantity cm3/: 70.00100.00
3rd speed 1/min:		1	10005:: (70.00100.00)
Charge press. hPa:		1	10003.1. (10,100.1.,100.00)
Del. quantity cm3/:		1	2nd speed 1/min: 430
1000s.:	(0.0015.00)	1	Del. quantity cm3/: 40.0070.00
4th speed 1/min:		1	10005.: (40.0070.00)
Charge press. hPa:		+	7000011 (10.00111110.007
Del. quantity cm3/:		+	4th speed 1/min: 100
	(30.0066.00)	+	Del. quantity cm3/: 60.00100.00
5th speed 1/min:		+	1000s.: (60.00100.00)
Charge press. hPa:		+	
Del. quantity cm3/:	62.0068.00	+	Mounting and assembly dimensions:
	(60.5069.50)	+	
9th speed 1/min:		+	Designation
Charge press. hPa:		+	K
Del. quantity cm3/:		+	KF mm: KOT
	(85.4093.40)	+	MS mm: 0.91.3
12th speed 1/min:		+	SVS max. mm: 1.1
Charge press. hPa:		+	LDA stroke mm: 7.5
Del. quyntity cm3/:		+	Ya mm: 37.440.4
	(89.5094.50)	+	Yb mm: 44.249.4
15th speed 1/min:		+	
Charge press. hPa:	1000	+	Remarks:

Operate control lever after each manifold—pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Note inst. in remarks column

Test scheet : CUM Edition : 02.94

replaces

Calibrating oil : 180-4113

Injection pump : VE6/12F1250R498 Type number : 0 460 426 211 Customer Part-No.: 3 282 306

Customer-specific information

Customer : CDC

Engine : 6 BT- 5.9A

Power KW: 132 1/min: 2500 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

(alibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 109 assembly

Opening

Pressure bar: 207.00...210.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery mm: -Prestroke (from BDC): -

Start of delivery block Piston stroke mm: 1.4

mm: +-0.02(0.06)

Outlet : D

Injection pump setting values Test specifications in parentheses Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1000

Setting value mm: 1.50...1.90

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Charge press hPa: 1000

Setting value bar: 6.30...6.90

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 850 Speed Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 81.50...82.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: -

Full-load del. w/out charge press.:

1/min: 500

Del. quantity cm3/

1000s.: 65.50...66.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 6.00...10.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 5.5 1000s.: (7.0)

Full-load speed regulation

Speed 1/min: 1380 Charge press hPa: 1000

Del quantity cm3/

1000s.: 63.50...69.50

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 75.00...105.00

1000s.: 75.00 mind

K10

Shutoff Shutoff electromagnet Volt: 24 electromagnet Volt: 24 Inspection-pump test specifications Overlow quantity at overflow valve: Test specifications in parentheses 1/min: 500 1st speed Timing-device characteristic: Charge press. hPa: -Shutoff 1/min: 1250 3rd speed electromagnet Volt: 24 hPa: 1000 Charge press : 41.70...83.40 Overflow mn: 2.30...3.10 TD travel cm3/10s: (26.70...98.40) quantity | mm: (2.00...3.40) 2nd speed 1/min: 1250 Shutoff Charge press. hPa: 1100 electromagnet Volt: 24 Shutoff 5th speed 1/min: 1000 electromagnet Volt: 24 Charge press. hPa: 1000 : 55.60...139.00 Overflow mm: 1.50...1.90 mm: (1.00...2.40) TD travel quantity cm3/10s: (40.60...154.00) Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 24 1/min: 850 7. Rotacao Charge press. hPa: 1000 1nd speed 1/min: 600 mm: 0.30...1.10 TD travel Charge-air pressure-setting mm: (0.00...1.40) point hPa: 450 Shutoff LDA-stroke mm: 6.5 electromagnet Volt: 24 8th speed 1/min: 450 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 72.50...73.50 Charge press. hPa: TD travel mm: 2.00...3.00 1000s.: (69.00...77.00) mm: (1.80...3.20) 1/min: 1500 2nd speed KSB/AFB Charge press. hPa: 1000 Volt: 24 valve Shutoff Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 24 1000s.: -Supply-pump pressure characteristic: 1/min: 1465 3rd speed Charge press. hPa: 1000 1/min: 500 1st speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 15.00...35.00 Supply-pump bar: 3.90...4.50 1000s.: pressure Shutoff 4th speed 1/min: 1380 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 1/min: 850 2nd speed Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 63.50...69.50 Supply-pump bar: 5.90...6.50 pressure 1000s.: (60.50...72.50) Shutoff 1/min: 1250 5th speed electromagnet Volt: 24 Charge press. hPa: 1000 1/min: 1000 3rd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 24 Del. quantity cm3/: 80.00...83.00 1000s.: (78.50...84.50) 6th speed 1/min: 1200 Supply-pump bar: 6.30...6.90 pressure Shutoff electromagnet Volt: 24 4th speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 24
Del. quantity cm3/: 81.50...84.50
1000S.: (79.50...86.50) Charge press, hPa: 1000 Supply-pump bar: 7.30...7.90 pressure 1/min: 850 7th speed

Charge press. hPa: 1000 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 81.50...82.50 1000s.: (79.00...85.00) 1/min: 500 8th speed Charge press. hPa: -Shutoff electromagnet Volt: 24 Del. quantity cm3/: 65.50...66.50 1000s.: (62.00...70.00) Mech. shutoff: Mech. Abstellung: 1/min: 1250 1st speed Charge press. hPa: 1000 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet volt: 24 Electr. shutoff: 1/min: 350 1st speed Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1st speed 1/min: 350 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 5.00...10.00 1000s.: (3.00...13.00) cm3/: 5.5 Dispersion 1000s.: (7.0) 2nd speed 1/min: 410 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 240 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...90.00 1000s.: (60.00...90.00)

2nd speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 80.00...120.00 1000s.: (80.00...120.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 75.00...105.00 **1000s.: (75.00...10**5.00) Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation mm: 3.6...3.8 KF mm: KOT MS1 mm: 1.2...1.5 SVS max. mm: 3.7 LDA stroke mm: 6.5 mm: 34.8...38.8 mm: 48.2...53.8 Υa Yb

Remarks:

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : FIA Edition : 03.94

replaces

Calibrating oil : ISO-4113

: VE6/12F1350R506 Injection pump Type number : 0 460 426 215

Customer Part-No. :

Customer-specific information Customer : IVECO FIAT

: 8060.45.4400 "DI" Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening .

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1100 Speed Charge press. hPa: 1000

Setting value mm: 3.10...3.30

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Speed

Charge press hPa: 1000 Setting value bar: 7.90...8.50

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 74.50...75.50

Shutoff

electromagnet Volt: 24 cm3/: 5.0 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000s.: 48.50...49.50

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 350

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 4.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1525 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 27.00...33.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100

Del. quantity cm3/: 60.00...110.0 mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1350		Shutoff	
Charge press hPa: 1000) <u> </u>	electromagnet Volt:	
TD travel mm: 4.60		Del. quantity_cm3/:	
	05.60)		(59.0067.00)
Shutoff	+	2nd speed 1/min:	
electromagnet Volt: 24	<u> </u>	Charge press. hPa:	1000
3rd speed 1/min: 1000		Del. quantity cm3/:	0.003.00
Charge press hPa: 1000			(0.003.00)
TD travel mm: 1.70		4th speed 1/min:	
	(02 .70)	Charge press. hPa:	1000
Shutoff	†	Shutoff	.
electromagnet Volt: 24	,	electromagnet Volt:	
4th speed 1/min: 1100		Del. quantity cm3/:	
Charge press hPa: 1000			(43.0055.00)
TD travel mm: 3.10		5th speed 1/min:	
	G3.90)	Charge press. hPa:	10 C U
Shutoff	†	Shutoff	•
electromagnet Volt: 24	†	electromagnet Volt:	
Complete management of the		Del. quantity cm3/:	
Supply-pump pressure cha	racteristic:		(24.0036.00)
1st speed 1/min 1753	, †	9th speed 1/min:	
1st speed 1/min: 1350		Charge press. hPa:	1000
Charge press. hPa: 1000	†	Shutoff	21
Supply-pump pressure bar: 9.30	1	electromagnet Volt:	
pressure bar: 9.30 Shutoff	†	Del. quantity cm3/:	07.5070.50
electronagnet Volt: 24	Ť	1244	(65.5072.50)
2nd speed 1/min: 1100	Ť	12th speed 1/min:	
Charge press. hPa: 1000		Charge press. hPa:	1000
Supply-pump	' · †	Shutoff	2/
pressure bar: 7.90	8 50	electromagnet Volt:	
Shutoff	T	Del. quyntity cm3/:	(68.5075.50)
electromagnet Volt: 24	Ī	13th speed 1/min:	
4th speed 1/min: 600	I	Charge press. hPa:	
Charge press. hPa: 1000	$_{ m I}$	Shutoff	1000
Supply-pump	m I	electromagnet Volt:	2/.
pressure bar: 5.00	S KAO I	Del. quantity cm3/:	
p. cood. c	1	10005	(71.5078.50)
Overlow quantity at over	flow valve:	14th speed 1/min:	
sterion quantities, at other	1	Charge press. hPa:	
1st speed 1/min: 600	1	Shutoff	1000
Charge press. hPa: 1000	1	electromagnet Volt:	24
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt: 24	‡	1000s.:	(76.0083.00)
Overflow: 90.2	0131.90	15th speed 1/min:	
quantity cm3/10s: (75.)	20156.90)	Charge press. hPa:	
2nd speed 1/min: 1350		Shutoff	
Charge press. hPa: 1000	+	electromagnet Volt:	24
Shutoff	+	Del. quantity cm3/:	
electromagnet Volt: 24	+		(45.5052.50)
	0180.70		
quantity cm3/10s: (82.)	30195.70)	Mech. shutoff:	
	+	Mech. Abstellung:	
Delivery-quant. and brea	kaway char.: $+$	•	
	+	1st speed 1/min:	
	+	Charge press. hPa:	1000
1nd speed 1/min: 500	<u>+</u>	Del. quantity cm3/:	0.003.00
Charge-air pressure-sett	ing 🕂	1000s.:	(0.003.00)
point hPa: 350	+	Shutoff	
LDA-stroke mm: 6.1	+	electromagnet volt:	24

Electr. shutoff:

1st speed 1/min: 350

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 13.00...17.00

1000s.: (10.00...20.00)

Dispersion cm3/: 4.0

1000s.: (5.0)

2nd speed 1/min: 425

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

3rd speed 1/min: 375

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 4.00...10.0

1000s.: (2.00...12.0)

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...60.00

1000s.: -

2nd speed 1/min: 130

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: -

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00

1000s.: -

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K _____ mm: 3.5...3.7

KF mm: KOT

K15

MS1 mm: 1.1...1.4

LDA stroke mm: 6.1

Ya mm: 37.9...39.9 Yb mm: 41.2...46.6

Remarks:

Operate control lever after each manifold-pressure compensator pressure

change.

Ya = Distance between VE flange and

speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control

lever on distributor-head end

Note inst. in remarks column

Test scheet : PEN

: 02.94 Edition

replaces

Calibrating oil : ISO-4113

: VE6/12F1950L527 Injection pump Type number : **0 460 426** 218

Customer Part-No. :

Customer-specific information

Customer : PENTA

Engine : KAD / KAMD 42 CE

kw: 155 Power 1/min: 1950 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil

return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening |

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length

Start of delivery

Prestroke mm: 0.3

 $(from BDC): \leftarrow 0.02(0.04)$

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1500

mm: 3.30...3.70 Setting value

Supply-pump pressure

1/min: 1500 Streed Charge press hPa: 1500

Setting value bar: 7.70...8.30

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 1500

Del. quantity cm3/

1000s.: 81.50...82.50

cm3/: 5.0 Dispersion 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 54.00...55.00

Low-idle speed regulation

1/min: 325 Speed

Del. quantity cm3/

1000s.: 21.00...25.00

Del. quantity cm3/: 14.0

1000s.: (14)

Full-load speed regulation

1/min: 2050 Speed Charge press hPa: 1500

Del. quantity cm3/

1000s.: 57.00...63.00

Start:

1/min: 100

Del. quantity cm3/: 20.00...70.00

1000s.: 20.00 mind

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1800 hPa: 1500 Charge press

TD travel mm: 4.10...5.10 mm: (3.70...5.50)

1/min: 1500 3rd speed Charge press

TD travel

hPa: 1500 mm: 3.30...3.70 mm: (2.80...4.20)

4th speed 1/min: 1100 hPa: 1500 Charge press

TD travel mm: 0.80...1.80 Del. quyntity cm3/: 81.50...82.50 1000s.: (79.00...85.00) mm: (0.40...2.20)5th speed 1/min: 1950 1/min: 1200 15th speed Charge press. hPa: 1500
Cel. quantity cm3/: 83.50...88.50
1000s.: (82.50...89.50)
18th speed 1/min: 600 Charge press. hPa: 1500 mm: 4.50...5.50 TD travel mm: (4.10...5.90) Supply-pump pressure characteristic: Charge press. hPa: -Del. quantity cm3/: 54.00...55.00 1000s.: (51.50...57.50) 1st speed 1/min: 1950 1/min: 800 Charge press. hPa: 1500 20th speed Supply-pump Charge press. hPa: 1500 bar: 9.20...9.80 Del. quantity cm3/: 92.50...99.50 pressure 2nd speed 1/min: 1500 1000s.: (91.00...101.00) Charge press. hPa: 1500 Suppoly-pump Mech. shutoff: Mech. Abstellung: pressure bar: 7.70...8.30 1/min: 800 4th speed Charge press. hPa: 1500 1st speed 1/min: 1950 Charge press. hPa: 1500 Del. quantity cm3/: 0.00...3.00 Supply-pump bar: 5.20...5.80 pressure 1000s.: (0.00...3.00) Overlow quantity at overflow valve: Shutoff electromagnet volt: -1st speed 1/min: 800 Charge press. hPa: 1500 Electr. shutoff: Overflow : 69.50...152.90 cm3/10s: (54.50...167.90) 1st speed 1/min: 325 Del. quantity cm3/: 0.00...3.00 quantity 1/min: 1950 2nd speed Charge press. hPa: 1500 1000s.: (0.00...3.00) : 97.30...180.70 cm3/1Gs: (102.30...195.70) Overflow Shutoff quantity electromagner volt: 12 Delivery-quant. and breakaway char.: Idle delivery: 1st speed 1/min: 325 Del. quantity cm3/: 21.00...25.00 1nd speed 1/min: 800 Charge-air pressure-setting 1000s.: (18.00...28.00) hPa: 750 cm3/: 14 point Dispersion 1000S.: (14) 1/min: 580 LDA-stroke mm: 7.1 DA-stroke mm: 7.1
Del. quantity cm3/: 82.00...83.00
1000S.: (78.50...86.50)
2nd speed 1/min: 2300
Charge press. hPa: 1500
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)
4th speed 1/min: 2180 2nd speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1/min: 275 1st speed Del. quantity cm3/: 50.00...100.00 1000s.: (50.00...100.00) Charge press. hPa: 1500 Del. quantity cm3/: 0.00...25.00 1000s.: -5th speed 1/min: 2050 Charge press. hPa: 1500 Del. quantity cm3/: 57.00...63.00 1000S.: (52.00...68.00) 9th speed 1/min: 1950 Charge press. hPa: 1500 Del. quantity cm3/: 74.50...78.50 2nd speed 1/min: 400 Del. quantity_cm3/: 30.00...60.00 1000s.: (30.00...60.00) 1/min: 100 4th speed Del. quantity cm3/: 20.00...70.00 1000s.: (20.00...70.00) 1000s.: (73.00...80.00) 1/min: 1500 12th speed Shutoff electromagnet: Charge press. hPa: 1500

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: KF mm: MS mm: 0.8...1.2
SVS max. mm: 1.6
LDA stroke mm: 7.1
Ya mm: 37.2...39.2
Yb mm: 49.1...56.9

Remarks:

Operate control lever after each manifold pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Pushing electromagnet.

Always pay attention to test instructions for DISTRIBUTOR-TYPE INJECTION PUMPS FOR DI ENGINES!

Information additionally required for testing fuel-injection pump:

TEST PREREQUISITES
Calibrating—oil return temperature with thermometer, °C :55

Calibrating-oil inlet temperature, °C :42...47

Dwell speed, 1/min :1200 Feedback voltage, mV :-

SETTINGS/TEST SPECIFICATIONS FOR FUEL-INJECTION PUMP,

delivery rates

Test speed, 1/min :<500
Temperature stabilisation
Speed 1/min :2000
Output temperature, °C :65
Measurement temperature, °C:61

Test speed, 1/min :500...799
Temperature stabilisation
speed 1/min :2000
Output temperature, *C :61
Measurement temperature, *C:57

Test speed, 1/min :800...1199
Temperature stabilisation speed 1/min :2000
Output temperature, *C :60
Measurement temperature, *C:56

Test speed, 1/min :1200...1700
Temperature stabilisation
speed 1/min :100
Output temperature, °C :53
Measurement temperature, °C:55

Test speed, 1/min : 1700
Temperature stabilisation
speed 1/min :100
Output temperature, °C :51
Measurement temperature, °C:53

Note inst. in remarks column

Test scheet : PEN Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1950L528 Type number : 0 460 426 219

Customer Part-No. :

Customer-specific information

Customer

: PENTA

Engine : KAD

KW: 169 Power 1/min: 1950 Speed

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Walt thickness : 2.00 mm: 840 x Length

Start of delivery

Prestroke mm: 0.3

(from BDC): +-0.02(0.04)

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed Charge press. hPa: 1500 Setting value mm: 3.20...3.60

Supply-pump pressure

Speed 1/min: 1500

Charge press hPa: 1500 Setting value bar: 8.30...8.90

Full-load del. with charge press.:

1/min: 1800 Speed Charge press. hPa: 1500

Del. quantity cm3/

1000s.: 92.00...93.00

cm3/: 5.0Dispersion

1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 600 Speed

Del. quantity cm3/

1000s.: 48.00...49.00

Low-idle speed regulation

Speed 1/min: 325

Del. quantity cm3/

1000s.: 7.00...11.00

Del. quantity cm3/: 5.00

1000s.: (5.0)

Full-load speed regulation

1/min: 2180 Speed Charge press hPa: 1500

Del. quantity cm3/

1000s.: 9.00...15.0G

Start:

1/min: 100 Speed

Del. quantity cm3/: 40.00...90.00 mind 1000s.: 65.00

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1900 Charge press hPa: 1500

TD travel mm: 4.40...5.40

mm: (4.00...5.80)

3rd speed Charge press

1/min: 1500 hPa: 1500 mm: 3.20...3.60 TD travel

mm: (2.70...4.10)

1/min: 1100 4th speed Charge press hPa: 1500

Del. quantity cm3/: 91.00...96.00 1000S.: (90.00...97.00) 9th speed 1/min: 1250 Charge press. hPa: 1500 Del. quantity cm3/: 86.50...91.50 1000S.: (85.50...92.50) 11th speed 1/min: 600 TD travel mm: 0.50...1.50 mm: (0.10...1.90) Supply-pump pressure characteristic: 1st speed 1/min: 1900 Charge press. hPa: 1500 Supply-pump Charge press. hPa: bar: 9.40...10.00 Del. quantity cm3/: 48.00...49.00 1000s.: (45.50...51.50) pressure 1/min: 1500 2nd speed Charge press. hPa: 1500 Supply-pump Mech. shutoff: Mech. Abstellung: pressure bar: 8.30...8.90 3rd speed 1/min: 1100 1st speed 1/min: 1950 Charge press. hPa: 1500 Del. quantity cm3/: 0.00...3.00 Charge press. hPa: 1500 Supply-pump bar: 7.00...7.60 pressure 4th speed 1/min: 600 1000s.: (0.00...3.00) Charge press. hPa: 1500 Shutoff Supply-pump electromagnet volt: pressure bar: 5.20...5.80 Electr. shutoff: Overlow quantity at overflow valve: 1st speed 1/min: 325 1st speed 1/min: 800 Charge press. hPa: -Charge press. hPa: 1500 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) : 88.80...133.30 cm3/10s: (73.80...148.30) Overflow quantity Shutoff 2nd speed 1/min: 1950 electromagnet volt: 12 Charge press. hPa: 1500 Overflow : 97.30...180.70 Idle delivery: quantity cm3/10s: (82.30...195.70) 1st speed 1/min: 325
Del. quantity cm3/: 7.00...11.00
1000S.: (4.00...14.00)
Dispersion cm3/: 5.0 Delivery-quant. and breakaway char.: 1nd speed 1/min: 800 1000s.: (5.0) Charge-air pressure-setting 1/min: 450 2nd speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) hPa: 750 point LDA-stroke mm: 7.5 Del. quantity cm3/: 65.00...66.00 1000s.: (61.50...69.50) Automatic starting fuel delivery: 2nd speed 1/min: 2300 Charge press. hPa: 1500
Del. quantity cm3/: 0.00...3.00
1000s.: (0.00...3.00)
4th speed 1/min: 2180 1st speed 1/min: 275
Del. quantity cm3/: 50.00...100.00
1000S.: (50.00...100.00) Charge press. hPa: 1500 Del. quantity cm3/: 9.00...15.00 1000s.: (4.00...20.00) 1/min: 400 2nd speed Del. quantity cm3/: 25.00...55.00 1000s.: (25.00...55.00) 1/min: 1950 5th speed 4th speed 1/min: 100 Del. quantity cm3/: 40.00...90.00 1000S.: (40.00...90.00) Charge press. hPa: 1500 Del. quantity cm3/: 88.50...92.50 1000s.: (87.00...94.00) 6th speed 1/min: 1800 Charge press. hPa: 1500 Del. quantity cm3/: 92.00...93.00 1000s.: (89.50...95.50) Shutoff electromagnet: Cut-in 1/min: 1500 8th speed min voltage : 10.0 Charge press. hPa: 1500 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm:
KF mm: KOT

MS1 mm: 1.6...1.9

SVS max. mm: 1.9

LDA stroke mm: 751

Ya mm: 37.2...39.2

Yb mm: 53.6...61.4

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Pushing electromagnet.

Note inst. in remarks column

Test scheet : MwM : 02.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1150R534 Type number : 0 460 426 220

Customer Part-No. :

Customer-specific information

Customer

Engine : TD 226-B6

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 110 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Lenath mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 900 Speed

Setting value mm: 2.10...2.30

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 900

Setting value bar: 6.80...7.40

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 900

Del. quantity cm3/ 1000s.: 68.00...69.00

Shutoff

electromagnet Volt: 12 cm3/: 4.0 Dispersion 1000s.: (4.5)

Low-idle speed regulation

1/min: 325 Speed

Del. quantity cm3/ 1000s.: 10.00...16.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 3.5 1000s.: (6.5)

Full-load speed regulation

1/min: 1250 Speed

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 79.00...82.00 V

1000s.: 72.00 mind

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000

mm: 2.70...3.50 TD travel mm: (2.40...3.80)

Shutoff

electromagnet Volt: 12 1/min: 900 3rd speed

TD travel mm: 2.10...2.30 mm: (1.70...2.70)

Shutoff

electromagnet Volt: 12 4th speed 1/min: 800

TD travel mm: 0.30...1.60 Shutoff mm: (0.50...1.90)electromagnet Volt: 12 Del. quantity cm3/: 63.00...66.00 1000s.: (61.50...67.50) 9th speed 1/min: 1000 Shutoff electromagnet Volt: 12 Supply—pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 66.00...68.00 1000s.: (64.50...70.50) 1st speed 1/min: 1150 Supply-pump pressure bar: 7.70...8.30 1/min: 900 12th speed Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 1/min: 900 2nd speed Del. quyntity cm3/: 68.00...69.00 Supply-pump 1000s.: (66.00...71.00) pressure bar: 6.80...7.40 1/min: 500 18th speed Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 500 electromagnet Volt: 12 Del. quantity cm3/: 55.50...61.50 Supply-pump 1000s.: (54.50...62.50) pressure bar: 5.50...6.10 Shutoff Mech. shutoff: electromagnet Volt: 12 Mech. Abstellung: Overlow quantity at overflow valve: 1st speed 1/min: 1150 Del. quantity cm3/: 0.00...3.00 1st speed 1/min: 500 1000s.: (0.00...3.00) Shutoff Shutoff electromagnet Volt: 12 electromagnet volt: 12 : 40.30...84.70 Overflow quantity cm3/10s: (25.30...98.70) Electr. shutoff: 2nd speed 1/min: 1150 Shutoff 1st speed 1/min: 350 electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 : 55.60...139.00 **Gverflow** 1000s.: (0.00...3.00) quantity cm3/10s: (40.60...154.00) Shutoff electromagnet volt: -Delivery-quant. and breakaway char.: Idle delivery: 1nd speed 1/min: 1350 1st speed 1/min: 350 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000s.: -2nd speed 1/min: 1300 Shutoff 1000s.: (6.5) electromagnet Volt: 12 2nd speed 1/min: 375 Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 5th speed 1/min: 1260 Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 Del. quantity cm3/: 10.00...40.00 Automatic starting fuel delivery: 1000s.: -1/min: 1250 6th speed 1st speed 1/min: 300 Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 electromagnet Volt: 12 Del. quantity cm3/: 20.00...100.00 1000s.: (31.50...48.50) 1000s.: -8th speed 1/min: 1150

1/min: 200 2nd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 100.00...180.00

1000s.: -

1/min: 100 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 79.00...81.00

1000s.: -

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.5...3.7 K KF mm: KOT mm: 0.9...1.3 MS SVS max. mm: 1.4 mm: 41.4...45.4 Ya Yb mm: 40.6...46.4

Remarks:

Starting delivery check V = Speed-control lever in full-load position

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : SOF Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R555 Type number : 0 460 426 227

Customer Part No. :

Customer-specific information Customer : IVECO-FIAT

: 8060.45.4485 "DI" Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening |

Pressure bar: 250.00...253.00

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1000 Speed Charge press. hPa: 1000

Setting value mm: 1.90...2.30

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000 Setting value bar: 7.00...7.60

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 75.50...76.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 47.00...48.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 14.00...18.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 4.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1475 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 44.00...50.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 60.00...110.00 mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1200	+ Charge-air pressure-setting
Charge press hPa: 1000	+ point hPa: 450
TD travel mm: 3.804.60	+ Shutoff
mm: (3.504.90)	+ electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 66.0067.00
electromagnet Volt: 24	† 1000s: (62.5070.59)
3rd speed 1/min: 1000	+ 2nd speed 1/min: 1550
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 1.902.30	+ Shutoff
mm: (1.402.80)	+ electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 24	† 1000s.: (0.003.00)
4th speed 1/min: 900	† 5th speed 1/min: 1450
Charge press hPa: 1000	+ Charge press. hPa: 1000
TD travel mm: 0.501.30	+ Shutoff
mm: (0.201.60)	+ electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 59.0071.00
electromagnet Volt: 24	† 1000s.: (57.0073.00)
Complete many and the second second	+ 8th speed 1/min: 1475
Supply-pump pressure characteristic:	Charge press. hPa: 1000
1-h 4/1 (00	+ Shutoff
1st speed 1/min: 600	+ electromagnet Volt: 24
Charge press. hPa: 1000	+ Del. quantity cm3/: 44.0050.00
Supply-pump	† 1000s.: (41.0053.00)
pressure bar: 4.705.30	9th speed 1/min: 1350
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 24	+ Shutoff
2nd speed 1/min: 1000	+ electromagnet Volt: 24
Charge press. hPa: 1000	+ Del. quantity cm3/: 68.5071.50
Supply-pump pressure bar: 7.007.60	10008.: (66.5073.50)
Shutoff	10th speed 1/min: 1200
	Charge press. hPa: 1000
electromagnet Volt: 24 3rd speed	+ Shutoff
Charge press. hPa: 1000	electromagnet Volt: 24
Supply-pump	+ Del. quantity cm3/: 69.5073.50 + 1000s.: (68.0075.00)
pressure bar: 8.809.40	12th speed 1/min: 700
Shutoff	
electromagnet Volt: 24	+ Charge press. hPa: 1000 + Shutoff
creet sing it vott. 24	electromagnet Volt: 24
Overlow quantity at overflow valve:	Del. quyntity cm3/: 75.5076500
over ton quarterly at over them valve.	10005.: (72.5079.50)
1st speed 1/min: 600	+ 13th speed 1/min: 600
Charge press. hPa: 1000	Charge press. hPa: -
Shutoff	+ Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
Overflow : 69.50152.90	Del. quantity cm3/: 44.0048.00
quantity cm3/10s: (54.50167.90)	+ 1000s.: (42.0050.00)
2nd speed 1/min: 1350	14th speed 1/min: 600
Charge press. hPa: 1000	Charge press. hPa: 1000
Shutoff	+ Shutoff
electromagnet Volt: 24	electromagnet Volt: 24
Overflow : 97.30180.70	Del. quantity cm3/: 76.5080.50
quantity cm3/10s: (82.30195.70)	1000s.: (75.0082.00)
	15th speed 1/min: 500
Delivery-quant. and breakaway char.:	- Charge press. hPa: -
•	+ Shutoff
	+ electromagnet Volt: 24
1nd speed 1/min: 600	+ Del. quantity cm3/: 47.0048.00
	10000 - (1/4 00 51 00)

Mech. shutoff: Mech. Abstellung:

1st speed 1/min: 1350 Charge press. hPa: 1000

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00)

Shutoff

electromagnet volt: 24

Electr. shutoff:

1st speed 1/min: 350 Charge ress. hPa: -

Del. quantity cm3/: 0.00...3.00 1090s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1/min: 350 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 14.00...18.00 1000s.: (11.00...21.00)

cm3/: 4.0 Dispersion

1000s.: (5.0) 1/min: 400

2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Automatic starting fuel delivery:

1/min: 130 1st speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00 1000S.: (60.00...110.00)

2nd speed 1/min: 250

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 40.00...60.00 1000s.: (40.00...60.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

mm: 3.5...3.7 KF mm: KOT mm: 1.2...1.5 mm: 37.9...39.9 mm: 39.3...44.7 MS1 Ya Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : PER Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1250R556 Type number : 0 460 426 228

Customer Part-No. :

Customer-specific information Customer : PERKINS

Engine : Q20 Phaser 210Ti

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 44.00...46.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

Pressure bar: 250.00...253.00

Perforated-plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000 Charge press. hPa: 1500

Setting value mm: 1.50...1.70

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1000 Speed

Charge press hPa: 1500 Setting value bar: 7.20...7.80

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 900 Charge press. hPa: 1500

Del. quantity cm3/

1000s.: 93.50...94.50

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 5.0 1000s.: (5.0)

Full-load del. w/out charge press.:

1/min: 500 Speed

Del. quantity cm3/

1000S.: 56.00...57.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

Speed 1/min: 280

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 6.5 1000s.: (6.5)

Full-load speed regulation

1/min: 1400 Speed Charge press hPa: 1500

Del. quantity cm3/

1000s.: 42.00...48.00

Shutoff

electromagnet Volt: 24

Start:

Speed 1/min: 100 Del. quantity cm3/: 130.00...190.00

mind 1000s.: 130.0

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100	+ Charge-air pressure-setting
Charge press hPa: 1500	point hPa: 700
TD travel mm: 2.102.70	Shutoff
mm: (1.703.10)	electromagnet Volt: 24
Shutoff	+ Del. quantity cm3/: 81.0082.00
electromagnet Volt: 24	† 1000s.: (78.0085.00)
3rd speed 1/min: 1000 -	+ 2nd speed 1/min: 1480
Charge press hPa: 1500	† Charge press. hPa: 1500
TD travel mm: 1.501.70 -	Shutoff
mm: (1.002.20)	+ electromagnet Volt: 24
Shutoff -	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 24	† _ 1000ş.: (0.003.00)
4th speed 1/min: 900	5th speed 1/min: 1400
Charge press hPa: 1500	Charge press. hPa: 1500
TD travel mm: 0.401.00	Shutoff
mm: (0.001.40)	electromagnet Volt: 24
Shutoff	- Del. quantity cm3/: 42.0048.00
electromagnet Volt: 24	1000s.: (39.0051.00)
Complex many many many many many many many many	8th speed 1/min: 1350
Supply-pump pressure characteristic:	Charge press. hPa: 1500
1at amond 1/min. 1250	Shutoff
1st speed 1/min: 1250	electromagnet Volt: 24
Charge press. hPa: 1500	Del. quantity cm3/: 65.0095.00
Supply-pump - pressure bar: 8.208.80 -	10008.: (65.0095.00)
Shutoff	9th speed 1/min: 1250
electromagnet Volt: 24	Charge press. hPa: 1500
2nd speed 1/min: 1000	Shutoff
Charge press. hPa: 1500	electromagnet Volt: 24
Supply-pump -	Del. quantity cm3/: 100.00105.00 1000s.: (99.00106.00)
pressure bar: 7.207.80	12th speed 1/min: 900
Shutoff	Charge press. hPa: 1500
electromagnet Volt: 24	Shutoff
3rd speed 1/min: 700	electromagnet Volt: 24
Charge press. hPa: 1500	Del. quyntity cm3/: 93.5094.50
Supply-pump	10008.: (90.5097.50)
pressure bar: 6.106.70	18th speed 1/min: 500
Shutoff	Charge press. hPa: -
electromagnet Volt: 24	Shutoff
	electromagnet Volt: 24
Overlow quantity at overflow valve:	Del. quantity cm3/: 56.0057.00
	1000s.: (53.0060.00)
1st speed 1/min: 500	20th speed 1/min: 700
Charge press. hPa: -	Charge press. hPa: 1500
Shutoff	- Shutoff'
electromagnet Volt: 24	electromagnet Volt: 24
Overflow : 41.7086.10 -	bel. quantity cm3/: 92.5098.50
quantity cm3/10s: (26.70101.10)	1000s.: (91.5099.50)
2nd speed 1/min: 1250 -	
Charge press. hPa: 1500	Mech. shutoff:
Shutoff	Hech. Abstellung:
electromagnet Volt: 24	
Overflow : 55.60139.00	1st speed
quantity cm3/10s: (40.60154.00)	Charge press. hPa: 1500
	Del. quantity cm3/: 0.003.00
Delivery-quant. and breakaway char.:	1000s.: (0.003.00)
. 1	Shutoff
1 and annual 1 (m.* 700	electromagnet volt: 24
1nd speed 1/min: 700	†
<u>.</u>	L Flacto chutoff.

1st speed 1/min: 280 Charge press. hPa: -

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Idle delivery:

1st speed 1/min: 280

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 9.00...13.00

1000s.: (5.00,...17.00)

Dispersion cm3/: 6.5

1000S.: (6.5) 1/min: 400

2nd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 0.00...3.00

1000s.: (0.00...3.00)

1/min: 300 3rd speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 1.00...9.60

1000s.: (0.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 130.00...190.00

1000S.: (130.00...190.00)

2nd speed 1/min: 230

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00)

1/min: 100 4th speed

Shutoff

electromagnet Volt: 24

Del. quantity cm3/: 130.00...190.00

1000s.: (130.00...190.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: KOT

MS1 mm: 1.4...1.7

LOZ

mm: 37.2...39.2 Ya mm: 44.9...53.5 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control

lever on distributor-head end

Operate control lever after each manifold-pressure compensator pressure change.

Note inst. in remarks column

Test scheet : SÓF Edition : 02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE6/12F1350R559 : 0 460 426 229 Type number

Customer Part-No. :

Customer-specific information Customer : IVECO-FIAT

Engine : 8060.45.4385 "DI"

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 027

Opening

bar: 250.00...253.00 Pressure

Perforated-plate

mm: 0.5 diameter

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): ~

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1000 Speed Charge press. hPa: 1000

mm: 1.40...1.60 Setting value

Shutoff

electromagnet Volt: 24

Supply-pump pressure

Speed 1/min: 1000 Charge press hPa: 1000

Setting value bar: 6.60...7.20

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/

10**60**s.: 61.00...62.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 56.00...57.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 4.0 1000s.: (5.0)

Full-load speed regulation

Speed 1/min: 1500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 41.00...47.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100

Del. quantity cm3/: 60.00...110.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100 Charge press hPa: 1000	‡	Charge-air pressure point hPa:	
TD travel mm: 2.403.00	+	Shutoff	
mn: (2.003.40)	†	electromagnet Volt:	
Shutoff electromagnet Volt: 24	†	Del. quantity cm3/:	
4th speed 1/min: 1000	Ī	2nd speed 1/min:	(59.0067.00)
Charge press hPa: 1000	I	Charge press. hPa:	
TD travel mm: 1.401.60	1	Shutoff	1000
mm: (0.802.20)	+	electromagnet Volt:	24
Shutoff	+	Del. quantity cm3/:	0.003.00
electromagnet Volt: 24	+		(0.003.00)
5th speed 1/min: 1350	†	5th speed 1/min:	
Charge press. hPa: 1000 TD travel mm: 4.605.20	Ť	Charge press. hPa: Shutoff	1000
rm: (4.205.60)	I	electromagnet Volt:	24
Shutoff	1	Del. quantity cm3/:	
electromagnet Volt: 24	+		(36.0052.00)
_	+	8th speed 1/min:	
Supply-pump pressure characteristic:	+	Charge press. hPa:	1000
1at annual	†	Shutoff	•
1st speed 1/min: 500 Charge press. hPa: 1000	†	electromagnet Volt:	
Supply-pump	Ť	Del. quantity cm3/:	(45.0065.00)
pressure bar: 3.804.40	Ι	9th speed 1/min:	
Shutoff	1	Charge press. hPa:	
electromagnet Volt: 24	+	Shutoff	1000
2nd speed 1/min: 1000	+	electromagnet Volt:	24
Charge press. hPa: 1000	+	Del. quantity cm3/:	57.0060.00
Supply-pump	+	1000\$.:	(55.0062.00)
pressure bar: 6.607.20	†	10th speed 1/min:	
Shutoff electromagnet Volt: 24	†	Charge press. hPa:	1000
3rd speed 1/min: 1350	Ī	Shutoff electromagnet Volt:	2/.
Charge press. hPa: 1000	I	Del. quantity cm3/:	
Supply-pump	1	19095.:	(58.0065.00)
pressure bar: 8.509.10	+	12th speed 1/min:	
Shutoff	+	Charge press. hPa:	1000
electromagnet Volt: 24	†	Shutoff	
Orania, grantita, at avantia, value	†	electromagnet Volt:	
Overlow quantity at overflow valve:	†	Del. quyntity cm3/:	(62.0069.00)
1st speed 1/min: 500	Ι	18th speed 1/min:	
Charge press. hPa: 1000	1	Charge press. hPa:	
Shutoff	+	Shutoff	
electromagnet Volt: 24	+	electromagnet Volt:	
Overflow : 69.50152.90	+	Del. quantity cm3/:	56.0057.00
quantity cm3/10s: (54.50167.90)	†	1000s.:	(53.0059.00)
2nd speed 1/min: 1350	†	Mark	
Charge press. hPa: 1000 Shutoff	†	Mech. shutoff:	
electromagnet Volt: 24	Ι	Mech. Abstellung:	
Overflow : 97.30180.70	1	1st speed 1/min:	1350
quantity cm3/10s: (82.30195.70)	1	Charge press. hPa:	
<u>.</u>	+	Del. quantity cm3/:	
Delivery-quant. and breakaway char.:	+	1000s.:	(0.003.00)
	+	Shutoff	
1nd croed 1/min. 500	†	electromagnet volt:	24
1nd speed 1/min: 500	I	Electr. shutoff:	
•	T	regret. SHOLDIT.	

1st speed 1/min: 350 Charge press. hPa: Del. quantity cm3/: 0.00...3.00 1**000**s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 350 1st speed Shutoff electromagnet Volt: 24
Del. quantity cm3/: 10.00...14.00
1000S.: (7.00...17.0G) cm3/: 4.0 Dispersion 1000s.: (5.0) 2nd speed 1/min: 425 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Automatic starting fuel delivery: 1st speed 1/min: 130 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000S.: (60.00...110.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 45.00...75.00 1**000**s.: (45.00...75.00) 4th speed 1/min: 100 Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00

1000s.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

min voltage : 20.0 Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.7 KF mm: KOT MS1 mm: 1.2...1.4 Ya mm: 37.9...39.9 Yb mm: 42.3...46.5

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Note inst. in remarks column

Test scheet : SOF Edition : 02.94

replaces

cacibrating oil : ISO-4113

Injection pump : VE6/12F1350R561 Type number : 0 460 426 230

Customer Part-No. :

Customer—specific information Customer : IVECO-FIAT

: 8060.45.4385 "DI" Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil return temp.

with thermometer : 54.00...56.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 027 assembly

Opening

bar: 250.00...253.00 Pressure

Perforated plate

diameter mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mn: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1100 Charge press. hPa: 1000

Setting value mm: 2.60...2.80

Shutoff

electromagnet Volt: 24

Supply-pump pressure

1/min: 1100 Speed Charge press hPa: 1000 Setting value bar: 7.90...8.50

Shutoff

electromagnet Volt: 24

Full-load del. with charge press.:

1/min: 700 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 65.00...66.00

Shutoff

electromagnet Volt: 24 Dispersion cm3/: 3.5 1000s.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500

Del. quantity cm3/

1000s.: 43.00...49.00

Shutoff

electromagnet Volt: 24

Low-idle speed regulation

1/min: 350 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 24 Del. quantity cm3/: 4.0 1000s.: (5.0)

Full-load speed regulation

1/min: 1500 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 37.00...43.00

Shutoff

electromagnet Volt: 24

Start:

1/min: 100 Speed

Del. quantity cm3/: 60.00...110.00

mind 1000s.: 60.00

Shutoff

electromagnet Volt: 24

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

3rd speed 1/min: 1100	+	Charge-air pressure	
Charge press hPa: 1000	3.00	point hPa:	400
TD travel mm: 2.60		Shutoff	24
Shutoff	3.40)	electromagnet Volt:	24 40 50
electromagnet Volt: 24	Ť	Del. quantity cm3/:	
4th speed 1/min: 1000	Ť		(57.0065.00)
Charge press hPa: 1000	T	2nd speed 1/min:	
TD travel mm: 1.20.	1 20 I	Charge press. hPa: Shutoff	1000
mm: (0.80.		electromagnet Volt:	2/.
Shutoff		Del. quantity cm3/:	
electromagnet Volt: 24	1		(0.003.00)
5th speed 1/min: 1350	1	5th speed 1/min:	
Charge press. hPa: 1000	1	Charge press. hPa:	
TD travel mm: 4.60.	5.20	Shutoff	1000
mm: (4.20.		electromagnet Volt:	24
Shutoff	, 1	Del. quantity cm3/:	
electromagnet Volt: 24	+	1000s.:	(32.0048.00)
	+	8th speed 1/min:	
Supply-pump pressure chara	acteristic:	Charge press. hPa:	
	+	Shutoff	
1st speed 1/min: 600	+	electromagnet Volt:	24
Charge press. hPa: 1000	+	Del. quantity cm3/:	
Supply-pump	+	1000s.:	(43.0063.00)
pressure bar: 5.20	5.80	9th speed 1/min:	
Shutoff	+	Charge press. hPa:	1000
electromagnet Volt: 24	+	Shutoff	
2nd speed 1/min: 1100	+	electromagnet Volt:	24
Charge press. hPa: 1000	+	Del. quantity cm3/:	57.0060.00
Supply-pump	+	1000S.:	(55.0062.00)
pressure bar: 7.90	8.50	10th speed 1/min:	
Shutoff	+	Charge press. hPa:	1000
electromagnet Volt: 24	+	Shutoff	
3rd speed 1/min: 1350	+	electromagnet Volt:	
Charge press. hPa: 1000	†	Del. quantity cm3/:	
Supply-pump	10.00		(58.0065.00)
pressure bar: 9.40		12th speed 1/min:	
Shutoff	†	Charge press. hPa:	1000
electromagnet Volt: 24	†	Shutoff	21
Overlow quantity at overfl	Tour value.	electromagnet Volt:	45 00 // 00
overtow quantity at over it	tow valve:	Del. quyntity cm3/:	(62.0069.00)
1st speed 1/min: 600	Ī	18th speed 1/min:	
Charge press. hPa: 1000	Ι	Charge press. hPa:	
Shutoff	I	Shutoff	_
electromagnet Volt: 24	I	electromagnet Volt:	2/.
Overflow : 69.50.	152.90	Del. quantity cm3/:	
quantity cm3/10s: (54.50		10005	(45.0052.00)
2nd speed 1/min: 1350	1	20th speed 1/min:	
Charge press. hPa: 1000	1	Charge press. hPa:	
Shutoff	1	Shutoff	1000
electromagnet Volt: 24	1	electromagnet Volt:	24
	180.70	Del. quantity cm3/:	
quantity cm3/10s: (82.30			(65.0072.00)
	+		
Delivery-quant. and breaka	away char.:	Mech. shutoff:	
	+	Mech. Abstellung:	
	+	_	
1nd speed 1/min: 600	+	1st speed 1/min:	
	+	Charge press. hPa:	1000

Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: 24 Electr. shuroff: 1st speed 1/min: 350 Charge press. hPa: -Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) Shutoff electromagnet volt: -Idle delivery: 1/min: 350 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 10.00...14.00 1000s.: (7.00...17.00) cm3/: 4.0 Dispersion 1000s.: (5.0) 2nd speed 1/min: 425 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) 3rd speed 1/min: 375 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 2.00...8.00 1000S.: (0.00...10.00) Automatic starting fuel delivery: 1/min: 130 1st speed Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) 2nd speed 1/min: 250 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 25.00...55.00 1000s.: (25.00...55.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 24 Del. quantity cm3/: 60.00...110.00 1000s.: (60.00...110.00) Shutoff electromagnet:

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.7 KF mm: KOT MS1 nm: 1.5...1.8 Ya mm: 37.9...39.9 Yb mm: 42.5...47.7

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Cut-in

min voltage

Rated voltage

: 20.0

: 24.0

Note inst. in remarks column

: PEU Test scheet Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection rumo : VE4/3F250CR311 Type number : 0 460 484 016

Customer Part-No. :

Customer-specific information

Customer : PSA

Engine : TUD3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Openina

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.60...4.00

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250

Setting value bar: 4.70...5.30

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1500 Speed

Del. quantity cm3/

1000s.: 20.50...21.50 cm3/: 2.0

Dispersion

109Cs.: (3.6)

Low-idle speed regulation

Speed 1/min: 375

Del. quantity cm3/

1000s.: 5.00...7.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dei. quantity cm3/: 2.0

1000s.: (3.0)

Residual-Delivery Setting

1/min: 550 Speed

Del. quantity cm3/

1000s.: 1.50...2.50

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2625 Speed

Del. quantity cm3/

1000s.: 15.00...19.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 32.00...58.00

1000s.: 32.00 mind

KSB/AFB

Valve Volt: 12

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications

Test specifications	in parentheses	KSB/AFB	
		valve Volt:	12
Timing-device chara	cteristic:	Shutoff	40
and annual 1/min.	2000	electromagnet Volt:	12
2nd speed 1/min: TD travel mm:	7.007.80	4th speed 1/min:	טטט
	(6.708.10)	- Supply-pump	3.605.20 A
KSB/AFB	(0.706.10)	pressure bar: KSB/AFB	3.003.20 A
valve Volt:	12	valve Volt:	
Shutoff		Shutoff	
electromagnet Velt:	12	electromagnet Volt:	12
3rd speed 1/min:	1250	-	
	3.604.00	Overlow quantity at	overflow valve:
	(3.104.50)	<u> </u>	
KSB/AFB		1st speed 1/min:	500
valve Volt:	12	KSB/AFB	
Shutoff		valve Volt:	12
electromagnet Volt:		Shutoff	
4th speed 1/min:		electromagnet Volt:	
	1.302.10	Overflow :	41.7083.40
	(1.002.40)	quantity cm3/10s:	(27.8097.30)
KSB/AFB	. 42	2nd speed 1/min:	2450
valve Volt:	12 -	KSB/AFB	40
Shutoff	40	- valve Volt:	12
electromagnet Volt:	12 -	Shutoff	42
8th speed 1/min: TD travel mm:		electromagnet Volt:	12
	4.005.00 B (3.305.70) B	Overflow:	
KSB/AFB	(3,30,5,707 8	quantity cm3/10s:	(41.70167.90)
valve Volt:	_	Dolivory count and	bankauau aban .
Shutoff	_	Delivery-quant. and	breakaway char.:
electromagnet Volt:	12		
9th speed 1/min:	ร์เก	3rd speed 1/min:	2775
	2.603.60 A	KSB/AFB	LITS
	(1.904.30) A	valve Volt:	12
KSB/AFB		Shutoff	· 6
valve Volt:	_	electromagnet Volt:	12
Shutofi	-	Del. quantity cm3/:	3.009.00
electromagnet Volt:	12	1000s.:	(0.0012.00)
		5th speed 1/min:	
Supply-pump pressure	e characteristic:	KSB/AFB	
		valve Volt:	12
1st speed 1/min:	500 -	Shutoff	
Supply-pump		electromagnet Volt:	12
	2.903.50	<pre>Del. quantity cm3/:</pre>	15.0019.00
KSB/AFB	-		(13.0021.00)
valve Volt:	12 -	9th speed 1/min:	2450
Shutoff	-	KSB/AFB	
electromagnet Volt:		- valve Volt:	12
2nd speed 1/min:	1250 -	- Shutoff	
Supply-pump	-	<pre>electromagnet Volt:</pre>	
	4.705.30	- Del. quantity cm3/:	20.0022.00
KSB/AFB	40		(18.8023.20)
valve Volt:	72 -	12th speed 1/min:	1500
Shutoff	-	- KSB/AFB	40
electromagnet Volt:		valve Volt:	12
3rd speed 1/min:	C40U -	Shutoff	40
Supply-pump	7 50 9 40	electromagnet Volt:	
pressure bar:	7.508.10	Pol. quyntity cm3/:	
	-	r Tudus.:	(18.8023.20)

20th speed 1/min: 500 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 18.30...21.30 **1000**\$.: (16.**80**...22.80) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 375 Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) KSB/AFB valve Volt: 12 Damper set gty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 375 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.00...7.00 1000S.: (2.00...10.00) High Idle: 1st speed 1/mi: 475 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 5.00...7.00 1000s.: (2.00...10.00) Residual: 1/min: 550 1.Rotacao KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 1.50...2.50 1000s.: (0.00...4.00)

Automatic starting fuel delivery:

1/min: 200

Volt: 12

Del. quantity cm3/: 36.00...70.00 1000S.: (36.00...70.00) 2nd speed 1/min: 300 KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...30.00 1000S.: (10.00...30.00) 1/min: 100 4th speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...58.00 10005.: (32.00...58.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: 5.6...6.0 MS mm: 1.1...1.5 Ya mm: 36.2...38.2 mm: 48.5...59.5 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

ever on distributor-head end

A = KSB adjustment point B = KSB curve point

1st speed KSB/AFB

electromagnet Volt: 12

valve Shutoff

Note inst. in remarks column

Test scheet : VWW Edition : 03.94 replaces

Calibrating oil : ISO-4113

Injection pump : VE4/8F2200R337-4 Type number : 0 460 484 035

Customer Part-No. :

Customer-specific information

Customer

Engine : 1.91 SD Klima

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Lenath mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250

Setting value mm: 3.10...3.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.50...6.10

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 35.50...36.50 cm3/: 2.0

Dispersion 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/ 1000s.: 7.00...9.00

Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 575

Del. quantity cm3/

1000s.: 2.00...3.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2525 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...75.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1250

Inj.-aty. cm3/

difference 1000s.: -5.00...-11.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1250 1.Speed

TD-travel

difference mm: -0.30..-0.5 #

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 5th speed 1/min: 2525 Inspection-pump test specifications Test specifications in parentheses Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...14.00 Timing-device characteristic: 1/min: 2200 mm: 7.10...7.90 1000s.: (8.00...16.00) 1/min: 2425 2nd speed TD travel 8th speed mm: (6.80...8.20) Shutoff electromagnet Volt: 12
Del. quantity cm3/: 18.C0...28.C0
1000s.: (17.00...29.00)
9th speed 1/min: 2200 Shutoff electromagnet Volt: 12 1/min: 1250 3rd speed mm: 3.10...3.50 mm: (2.60...4.00) TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 31.00...33.00
1000s.: (29.80...34.20)
12th speed 1/min: 1250 Shutoff electromagnet Volt: 12 4th speed 1/min: 750 TD travel mm: 1.10...1.90 mm: (0.80...2.20) Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 35.50...36.50
1000s.: (33.80...38.20)
20th speed 1/min: 750 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff 1/min: 750 1st speed Supply-pump bar: 4.30...4.90 pressure Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Del. quantity cm3/: 27.50...32.50 1000s.: (25.00...35.00) 1/min: 1250 2nd speed Supply-pump bar: 5.50...6.10 pressure Shutoff electromagnet Volt: 12 Mech. shutoff: 3rd speed 1/min: 2200 Supply-pump Electr. shutoff: bar: 7.70...8.30 pressure Shutoff 1/min: 450 1st speed Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 Overlow quantity at overflow valve: Shutoff electromagnet volt: -1st speed 1/min: 750 Shutoff Damper set qty.: electromagnet Volt: 12 : 41.70...86.10 Overflow LFG-setting: cm3/10s: (26.70...101.10) 1/min: 2200 quantity solidale con carcassa: Idle delivery: 2nd speed Shutoff electromagnet Volt: 12 1/min: 450 1st speed Overflow : 55.60...152.90 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00) cm3/10s: (41.60...167.90) quantity Delivery-quant. and breakaway char.: High Idle: 1/min: 2700 2nd speed Shutoff 1/mi: 500 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12

Del. quantity cm3/: 7.00...9.00 1**000**\$.: (4.**0**0...12.00) Residual:

1.Rotação 1/min: 575 Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.00...3.00 1000s.: (0.50...4.50) 2nd speed 1/min: 525

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 2.50...4.50 1000s.: (1.00...6.00)

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1250 1st speed

Inj.-qty. cm3/ : 0.0...+3.0 Z"

difference 1000s.: -

TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250

: -0.8...-1.2 " TD-travel mm: (-0.5...-1.5) " difference

Shutoff

electromagnet Volt: 12

SP press.-dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250 Supply pump-

: -0.50..-0.90" pressure difference bar: (-0.3...-1.1) "

Automatic starting fuel delivery:

1st speed 1/min: 180 Shutoff

electromagnet Volt: 12

Del. quantity cm2/: 35.00...75.00 1000s.: (35.00...75.00)

1/min: 380

Shutoff

2nd speed

electromagnet Volt: 12

Del. quantity cm3/: 18.00...38.00 1000s.: (18.00...38.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...75.00

1000s.: (35.00...75.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mountino and assembly dimensions:

Designation

mm: 3.2...3.4 K KF mm: 5.1...5.5 MS mm: 1.1...1.5 SVS max. mm: 4.6 mm: 37.6...41.6 Ya

mm: 49.9...63.3 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

Z = Absolute delivery

Note inst. in remarks column

Test scheet : FIA Edition : 02.94 replaces : 10.04.92 Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R463 Type number **: 0 460 484 051**

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

Engine : M708 BA/FA 17.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil •c return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating rozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery Prestroke mn: -(from BDC): -

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500

Setting value mm: 5.10...5.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500

Setting value bar: 5.30...5.90

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1500

Del. quantity cm3/

1**000**S.: 28.80...29.80

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2500

Del. quantity cm3/

1000s.: 17.00...23.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 37.00...63.00

1000s.: 37.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed

Inj.-qty. cm3/

difference 1000s.: -7.00...-13.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel

difference mm: -0.70..-0.9 #

Shutoff

electromagnet Volt: 12

Inspection pump test specifications Test specifications in parentheses

Timing-device characteristic:	electromagnet Volt: 12
2nd speed 1/min: 2300	Del. quantity cm3/: 0.001.60 1000s.: (0.001.60)
TD travel mm: 8.609.40 mm: (8.309.70)	3rd speed 1/min: 2700 Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 1.009.00
3rd speed 1/min: 1500	1000\$.: (0.0010.00)
TD travel mm: 5.105.50 mm: (4.606.00)	5th speed 1/min: 2500 Shutoff
Shutoff -	electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 17.0023.00
4th speed	1000S.: (15.0025.00) 9th speed 1/min: 2300
mm: (1.102.90)	Shutoff
Shutoff	electromagnet Volt: 12
electromagnet Volt: 12 - Shutoff -	Del. quantity cm3/: 29.9032.30 1000s.: (28.6033.60)
electromagnet Volt: 12	12th speed 1/min: 1500
6th speed 1/min: 2000 -	Shutoff
TD travel mm: 7.208.00	electromagnet Volt: 12
Shutoff - electromagnet Volt: 12 -	Del. quyntity cm3/: 28.8029.80 1000s.: (27.0031.60)
- ceceronagnee voet. It	15th speed 1/min: 1000
Supply-pump pressure characteristic:	Shutoff
·	electromagnet Volt: 12
1st speed 1/min: 2300 -	Del. quantity cm3/: 28.8031.20
Supply-pump -	1000s.: (27.7032.30)
pressure bar: 7.408.00 - Shutoff	20th speed 1/min: 600 Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
2nd speed 1/min: 1500	Del. quantity cm3/: 28.5031.50
Supply-pump - pressure bar: 5.305.90 -	1000s.: (26.5033.50)
Shutoff	Mech. shutoff:
electromagnet Volt: 12	-
3rd speed 1/min: 600 -	Electr. shutoff:
Supply-pump - pressure bar: 3.103.70 -	1st speed 1/min: 450
Shutoff -	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
	Shutoff
Overlow quantity at overflow valve:	electromagnet volt: -
1st speed 1/min: 600 Shutoff	Idle delivery:
electromagnet Volt: 12	1st speed 1/min: 450
Overflow : 41.7083.40	- Shutoff
quantity cm3/10s: (26.7098.40)	- electromagnet Volt: 12
2nd speed 1/min: 2300	
	Del. quantity cm3/: 10.0014.00
Shutoff	Del. quantity cm3/: 10.0014.00 1000s.: (7.0017.00)
electromagnet Volt: 12	Del. quantity cm3/: 10.0014.00 1000S.: (7.0017.00) Dispersion cm3/: 2.5
	Del. quantity cm3/: 10.0014.00 1000s.: (7.0017.00) Dispersion cm3/: 2.5 1000s.: (3.0) 2nd speed 1/min: 650
electromagnet Volt: 12 Overflow : 55.60139.00 - quantity cm3/10s: (40.60154.00)	Del. quantity cm3/: 10.0014.00 1000s.: (7.0017.00) Dispersion cm3/: 2.5 1000s.: (3.0) - 2nd speed 1/min: 650 Shutoff
electromagnet Volt: 12 Overflow : 55.60139.00	Del. quantity cm3/: 10.0014.00 1000s.: (7.0017.00) Dispersion cm3/: 2.5 1000s.: (3.0) 2nd speed 1/min: 650 Shutoff electromagnet Volt: 12
electromagnet Volt: 12 Overflow : 55.60139.00 - quantity cm3/10s: (40.60154.00)	Del. quantity cm3/: 10.0014.00 1000s.: (7.0017.00) Dispersion cm3/: 2.5 1000s.: (3.0) 2nd speed 1/min: 650 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.005.00
electromagnet Volt: 12 Overflow : 55.60139.00 - quantity cm3/10s: (40.60154.00)	Del. quantity cm3/: 10.0014.00 1000s.: (7.0017.00) Dispersion cm3/: 2.5 1000s.: (3.0) 2nd speed 1/min: 650 Shutoff electromagnet Volt: 12

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 2.00...8.00 1000s.: (0.00...10.50) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Inj.-qty. cm3/ : -7.0...-9.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 SP press.-dif.measurement: pompa di mandata (FP): 1/min: 1500 1st speed Supply pump-: -0.1...-0.3 " pressure bar: difference Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 350 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.00...59.00 1000s.: (43.00...59.00) 2nd speed 1/min: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...42.00 1000s.: (32.00...42.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...63.00 1000s.: (37.00...63.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation

mm: 3.2...3.4 mm: 5.3...5.7

mm: 1.6...2.0 mm: 37.2...39.2

mm: 47.8...56.2

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Remarks:

K KF MS

Ya

Note inst. in remarks column

Test scheet : FOR

Edition : 08.02.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/8F2400R495 Type number : 0 460 484 063

Customer Part-No. :

Customer-specific information

Customer : FORD

Engine : 1,8 L IDI NA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Start of delivery block Piston stroke mm: 0.85

mm: +0.02(0.06)

Outlet

Injection pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Speed

Setting value mm: 6.50...6.90

AFB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed

Setting value bar: 6.40...7.00

KSB/AFE

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1750

Del. quantity cm3/

1000s.: 31.00...31.40

11

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000S.: (3.0)

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1000s.: 6.00...10.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (2.5)

Residual-Delivery Setting

Speed 1/min: 530

Del. quantity cm3/ 1000s.: 1.00...5.00

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2625 Speed

Del. quantity cm3/

1000s.: 9.50...15.50

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Shutoff Del. quantity cm3/: 50.00...70.00 electromagnet Volt: 12 1000s.: 50.00 mind 1/min: 400 9th speed mm: 3.40...3.60 A KSB/AFB TD travel Volt: 12 mm: (2.50...4.50) A Valve Shutoff KSB/AFB electromagnet Volt: 12 valve Volt: -Shutoff Load-dependent start of delivery: electromagnet Volt: 12 Irij.-qty.dif.measurement: Supply-pump pressure characteristic: Speed 1/min: 1200 Inj.-qty. cm3/1/min: 750 1st speed difference 1000s.: -5.20..-13.20 # Supply-pump bar: 4.10...4.70 KSB/AFB pressure Volt: 12 valve KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff TD-travel dif.measurement electromagnet Volt: 12 correttore anticipo iniezione (SV) 1/min: 1500 2nd speed 1. Speed 1/min: 1200 Supply-pump TD-travel bar: 6.40...7.00 pressure difference mm: -1.50..-1.70# KSB/AFB KSB/AFB Volt: 12 valve Volt: 12 Shutoff valve Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 electromagnet Volt: 12 amua-vlaqu2 Inspection-pump test specifications bar: 7.90...8.50 pressure Test specifications in parentheses KSB/AFB valve Volt: 12 Timing-device characteristic: Shutoff electromagnet Volt: 12 1/min: 2000 2nd speed mm: 8.40...9.20 TD travel Overlow quantity at overflow valve: mm: (8.00...9.60) KSB/AFB 1/min: 750 1st speed valve Volt: 12 KSB/AFB Shutoff Volt: 12 valve electromagnet Volt: 12 Shutoff 1/min: 1500 3rd speed electromagnet Volt: 12 TD travel mm: 6.50...6.90 : 41.70...86.10 Overflow cm3/10s: (26.70...101.10) 1/min: 2400 mm: (6.00...7.40) quantity KSB/AFB 2nd speed valve Volt: 12 KSB/AFB Shutoff valve Volt: 12 electromagnet Volt: 12 Shutoff 1/min: 800 4th speed electromagnet Volt: 12 mm: 2.80...3.60 TD travel : 55.60...139.00 Overflow mm: (2.40...4.00) cm3/10s: (40.60...154.00) quantity KSB/AFB valve Volt: 12 Delivery-quant. and breakaway char.: Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 3rd speed 1/min: 2950 mm: 2.80...5.20 B TD travel KSB/AFB mm: (2.70...5.30) B Volt: 12 valve KSB/AFB Shutoff Volt: valve electromagnet Volt: 12

Del. quantity cm3/: 0.002.00 1000S.: (0.002.00)	+ solidale con carcassa: - Idle delivery:
5th speed 1/min: 2625 KSB/AFB	1st speed 1/min: 425
valve Volt: 12 Shutoff	+ KSB/AFB + valve Volt: 12
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 9.5015.50	+ electromagnet Volt: 12
1000S.: (8.0017.00) 8th speed 1/min: 2550	Del. quantity cm3/: 6.0010.00
8th speed 1/min: 2550 KSB/AFB	1000s.: (4.0012.00)
valve Volt: 12	High Idle:
Shutoff	T might tate.
electromagnet Volt: 12	1st speed 1/mi: 570
Del. quantity cm3/: 15.0023.00	KSB/AFB
1000s.: (13.0025.00)	valve Volt: 12
9th speed 1/min: 2400	- Shutoff
KSB/AFB	electromagnet Volt: 12
valve Volt: 12	Del. quantity cm3/: 11.0015.00
Shutoff	10005:: (9.0017.00)
electromagnet Volt: 12	10003 (7.0017.80)
Del. quantity cm3/: 25.1027.10	- Residual:
1000S.: (24.1028.10)	T hesituat.
12th speed 1/min: 1750	1.Rotacao 1/min: 530
KSB/AFB	KSB/AFB
valve Volt: 12	+ valve Volt: 12
Shutoff	Shutoff
electromagnet Volt: 12	electromagnet Volt: 12
Del. quyntity cm3/: 31.0031.40	Del. quantity cm3/: 1.005.00
1000s.: (29.5032.90)	10005:: (0.205.80)
15th speed 1/min: 1000	1
KSB/AFB	Load-dependent start of delivery:
valve Volt: 12	Injqty.dif.measurement:
Shutoff	+
electromagnet Volt: 12	1st speed 1/min: 1200
Del. quantity cm3/: 28.7031.70	Injqty. cm3/ : -5.07.0 "
1000s.: (27.9032.50)	+ difference 1000s.: -
20th speed 1/min: 750	+ KSB/AFB
KSB/AFB	+ valve Volt: 12
valve Volt: 12	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ 2nd speed 1/min: 1200
Del. quantity cm3/: 28.5031.50	† Injaty. cm3/: +2.0+8.0 Z'
1000S.: (27.7032.30)	difference 1000s.: -
ART IN THE STATE OF S	†
Mech. shutoff:	+ TD-travel dif.measurement:
Tlooks showses.	correttore anticipo iniezione (SV)
Electr. shutoff:	+ 1st speed 1/min: 1200
1st speed 1/min: 425	† TD-travel : -1.72.5 '
	difference mm: -
Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)	+ KSB/AFB
Shutoff	+ valve Volt: 12 + Shutoff
electromagnet volt: -	
KSB/AFB	+ electromagnet Volt: 12
VALUE WILL I	I SP proce -dif management.
valve Volt: 12	SP pressdif.measurement:
	pompa di mandata (FP):
Damper set qty.:	
	pompa di mandata (FP):

L20

Supply pump-: **-0.1...-**0,3 " pressure difference bar: -KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1/min: 275 1st speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...80.00 1000s.: (50.00...80.00) 1/min: 500 2nd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 28.00...40.00 1000S .: LFG- 570 VH- VL 1/min: 500 3rd speed KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 24.00...36.00 1000S.: LFG- 425 VH-- VL 1/min: 200 4th speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 50.00...70.00 1000s.: LFG- 425 VH- VL Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mn: -KF mm: KOT MS mm: 2.1...2.3

mm: 31.8...35.8 mm: 38.0...47.0

Ya = Distance between VE flange and

Measurement point = edge of control

speed-control lever in idle

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

A = KSB adjustment point B = KSB curve point

position

Ya

Note inst. in remarks column

Test scheet : FIA Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R537 Type number : 0 460 484 067

Customer Part-No. :

Customer-specific information Customer : FIAT-AUTO

Engine : M708 HT 17.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil **°**€ return temp.

with thermometer: 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Openina |

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Charge press. hPa: 1000

Setting value mm: 4.00...4.20

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 1000

Setting value bar: 5.20...5.80

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 41.00...42.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/ 1000s.: 28.00...29.00

11

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 450 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2500 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 29.00...33.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

L22

Del. quantity cm3/: 35.0059.00	1
mind 1000s.: 35.00	Supply-pump pressure characteristic:
KSB/AFB	tooppey pump pressure characteristie.
Valve Volt: 12	1st speed 1/min: 2300
Shutoff	Charge press. hPa: 1000
electromagnet Volt: 12	- Supply-pump
ctati sing at vott. 12	+ pressure bar: 7.307.90
Inspection-pump test specifications	+ KSB/AFB
Test specifications in parentheses	+ valve Volt: 12
rese specificacions in parenerases	+ Shutoff
Timing-device characteristic:	electromagnet Volt: 12
thing device that acter is tit.	3rd speed 1/min: 1500
2nd speed 1/min: 2000	Charge press. hPa: 1000
Charge press hPa: 1000	Supply-pump
fD travel mm: 6.507.10	pressure bar: 5.205.80
mm: (6.207.40)	KSB/AFB
KSB/AFB	1
valve Volt: 12	t valve Volt: 12 Shutoff
Shutoff	
electromagnet Volt: 12	+ electromagnet Volt: 12 + 4th speed 1/min: 1000
3rd speed 1/min; 1500	
Charge press hPa: 1000	- Charge press. hPa: 1000
TD travel mm: 4.004.20	+ Supply-pump + pressure bar: 3.904.50
mm: (3.504.70)	+ pressure bar: 3.904.50 + KSB/AFB
KSB/AFB	3
valve Volt: 12	+ valve Volt: 12
Shutoff	- Shutoff
	f electromagnet Volt: 12
electromagnet Volt: 12 4th speed	
	† Overlow quantity at overflow valve:
Charge press hPa: 1000 TD travel mm: 1.101.70	100 00000 1/100 250
	1st speed 1/min: 750
mm: (0.802.00)	+ Charge press. hPa: -
KSB/AFB valve Volt: 12	KSB/AFB
valve Volt: 12 Shutoff	+ valve Volt: 12
	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
5th speed 1/min; 2300	+ Overflow : 41.7083.40
Charge press. hPa: 1000	+ quantity cm3/10s: (26.7098.40)
TD travel mm: 7.908.50	2nd speed 1/min: 2300
mm: (7.608.80) KSB/AFB	+ Charge press. hPa: 1000
valve Volt: 12	KSB/AFB
Shutoff	+ valve Volt: 12
electromagnet Volt: 12	+ Shutoff
8th speed 1/min: 1000	electromagnet Volt: 12
	+ Overflow : 55.60139.00
Charge press. hPa: 1000 TD travel mm: 2.004.00 B	quantity cm3/10s: (40.60154.00)
	Notice and the set
mm: KSB/AFB	† Delivery-quant. and breakaway char.:
valve Volt: -	†
Shutoff	T 1nd analy 1/-in. 1100
electromagnet Volt: 12	† 1nd speed 1/min: 1100
9th speed 1/min: 400	thange-air pressure-setting
	point hPa: 350
Charge press. hPa: 1000	+ KSB/AFB
TD travel mm: 2.504.50 A	t valve Volt: 12 Shutoff
MM: - KSB/AFB	*- NUMBER
D. 3C) ACD	4
	+ electromagnet Volt: 12
valve Volt: -	electromagnet Volt: 12 Del. quantity cm3/: 37.0038.00
	+ electromagnet Volt: 12

Charge press. hPa:	1000	†	Shutoff
KSB/AFB	. 12	+	electromagnet Volt: 12
valve Volt:	12	†	Del. quantity cm3/: 38.0041.00
Shutoff		t·	1000s.: (37.0342.00)
electromagnet Volt:		+	
Del. quantity cm3/:		t	Mech. shutoff:
	(0.003.00)	+	
3rd speed 1/min:		+	Electr. shutoff:
Charge press. hPa:	1000 -	+	
KSB/AFB	•	+	1st speed 1/min: 450
valve Volt:	12	+	Del. quantity cm3/: 0.003.00
Shutoff		+	1000s.: (0.003.00)
electromagnet Volt:	12 .	-	Shutoff
Del. quantity cm3/:	4.5012.50	├	electromagnet volt: -
	(3.5013.50)	1	KSB/AFB
5th speed 1/min:		1	valve Volt: 12
Charge press. hPa:		1	13111
KSB/AFB		L	Idle delivery:
valve Volt:	12	L	Tate delivery:
Shutoff	,,,	Ĺ	1st speed 1/min: 450
electromagnet Volt:	12	L	KSB/AFB
Del. quantity cm3/:		L	valve Volt: 12
10005	(26.0036.00)	Ι	Shutoff
9th speed 1/min:		\mathbf{I}	electromagnet Volt: 12
Charge press. hPa:		T .	Del. quantity cm3/: 10.0014.00
KSB/AFB	1000	Ī	1000S.: (7.0017.00)
valve Volt:	12		
Shutoff	12	1	Dispersion cm3/: 2.5
	12	T	1000S.: (2.5)
electromagnet Volt:	16	T	2nd speed 1/min: 550
Del. quantity cm3/:	40.0043.00 -	t	KSB/AFB
	(39.0044.00)	†	valve Volt: 12
12th speed 1/min:		t	Shutoff
Charge press. hPa:	1000 -	†	electromagnet Voit: 12
KSB/AFB	40	†	Del. quantity cm3/: 0.003.00
valve Volt:	12 -	†	1000\$.: (0.003.00)
Shutoff	-	 	3rd speed 1/min: 400
electromagnet Volt:		 	KSB/AFB
Del. quyntity cm3/:		-	valve Volt: 12
	(39.2043.80)	+	Shutoff
16th speed 1/min:		+	electromagnet Volt: 12
Charge press. hPa:		-	Del. quantity cm3/: 20.5025.50
KSB solenoid-operat		-	1000s.: -
valve volt:	12 -	-	
Shutoff	-	-	Part-load del.at 3rd injqty.
electromagnet volt:		-	terza fermo della portata
Del. quantity cm3/:		-	stop (EGR set)
1000H.:		-	scarico) (ARF)
18th speed 1/min:	750	-	gaz d'échappement-ARF)
Charge press. hPa:	-	<u> </u>	Spacing mm: 12.0
KSB/AFB	·	-	,
valve Volt:	12	-	1st speed
Shutoff	·	1	Charge press. hPa: 1000
electromagnet Volt:	12	-	KSB/AFB
Del. quantity cm3/:		1	valve Volt: 12
	(25.5031.50)	L	Shutoff
20th speed 1/min:		-	electromagnet Volt: 12
Charge press. hPa:		-	Del. quantity cm3/: 19.021.00
KSB/AFB	· = - •	L	10008.: (17,5022.50)
valve Volt:	12	L	1000011 (11,5011122.50)
**************************************	- -	_	Automatic starting fuel delivery:

1st speed 1/min: 300 KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.00...57.00 1000s : (37.00...57.00) 1/min: 500 2nd speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.00...37.00 1000s.: (17.00...37.00) 1/min: 100 4th speed KSB/AFB Volt: 12 valve Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...59.00 1000s.: (35,00...59.00) Shutoff electromagnet: Cut-in min voltage : 10.0 : 12.0 Rated voltage Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: 5.2...5.6 MS mm: 0.8...1.2 mm: 37.2...39.2 Ya mm: 40.4...49.0 Ajustement Potentiometer: Supply voltage volt: 5.0 pot. Output volt volt: 3.32 pot. Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control

lever on distributor-head end A = KSB adjustment point B = KSB curve point Pump with slave plunger

position

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

Measurement point = edge of control

Note inst. in remarks column

Test scheet : FIA : 02.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R538 Type number : 0 460 484 068

Customer Part-No. :

Customer-specific information : FIAT-AUTO Customer

Engine : M708 HT 17.L

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Charge press. hPa: 1000

Setting value mm: 4.00...4.20

AFB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500 Charge press hPa: 1000

Setting value bar: 5.20...5.80

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1500 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 41.00...42.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (2.5)

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 28.00...29.00

11

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 450

Del. quantity cm3/

1000s.: 10.00...14.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Full-load speed regulation

1/min: 2500 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 29.00...33.00

KSB/AFB

valve Volt: 12

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

L26

Dal augustinu an7/a 75 00 50 00	1
Del. quantity cm3/: 35.0059.00 mind 1000s.: 35.00	
	+ Supply-pump pressure characteristic:
KSB/AFB	†
Valve Volt: 12	† 1st speed 1/min: 2300
Shutoff	† Charge press. hPa: 1000
electromagnet Volt: 12	+ Supply-pump
	+ pressure bar: 7.307.90
Inspection-pump test specifications	+ KSB/AFB
Test specifications in parentheses	+ valve Volt: 12
	+ Shutoff
Timing-device characteristic:	+ electromagnet Volt: 12
-	+ 3rd speed 1/min: 1500
2nd speed 1/min: 2000	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Supply-pump
TD travel mm: 6.507.10	+ pressure bar: 5.205.80
mm: (6.207.40)	+ KSB/AFB
KSB/AFB	+ valve Volt: 12
valve Volt: 12	Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ 4th speed 1/min: 1000
3rd speed 1/min: 1500	
	+ Charge press. hPa: 1000
Charge press hPa: 1000	+ Supply-pump
TD travel mm: 4.004.20	+ pressure bar: 3.904.50
mm: (3.504.70)	+ KSB/AFB
KSB/AFB	+ valve Volt: 12
valve Volt: 12	+ Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+
4th speed 1/min: 1000	+ Overlow quantity at overflow valve:
Charge press hPa: 1000	+
TD travel mm: 1.101.70	+ 1st speed 1/min: 750
(8 60 5 60)	1 -1 ' 1 -
mm: (0.802.00)	+ Charge press. hPa: -
mm: (0.802.00) KSB/AFB	Charge press. hPa: - KSB/AFB
	+ KSB/AFB
KSB/AFB	+ KSB/ĀFB + valve Volt: 12
KSB/AFB valve Volt: 12 Shutoff	+ KSB/ĀFB + valve Volt: 12 + Shutoff
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	+ KSB/AFB + valve Volt: 12 + Shutoff + electromagnet Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300	+ KSB/ĀFB + valve Volt: 12 + Shutoff + electromagnet Volt: 12 + Overflow : 41.7083.40
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80)	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow: 41.7083.40 quantity: cm3/10s: (26.7098.40) 2nd speed: 1/min: 2300 Charge press. hPa: 1000
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B mm: —	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B mm: — KSB/AFB	KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00)
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Sth speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B mm: — KSB/AFB valve Volt: —	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.:
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B mm: — KSB/AFB valve Volt: — Shutoff	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B mm: — KSB/AFB valve Volt: — Shutoff electromagnet Volt: 12	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50 mm: (7.608.80) KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 8th speed 1/min: 1000 Charge press. hPa: 1000 TD travel mm: 2.004.00 B mm: — KSB/AFB valve Volt: — Shutoff electromagnet Volt: 12 9th speed 1/min: 400	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/AFB
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Sth speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/AFB valve Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Sth speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/AFB valve Volt: 12 Shutoff
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Sth speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Sth speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Sth speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.0038.00
KSB/AFB valve Volt: 12 Shutoff electromagnet Volt: 12 5th speed 1/min: 2300 Charge press. hPa: 1000 TD travel mm: 7.908.50	KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 41.7083.40 quantity cm3/10s: (26.7098.40) 2nd speed 1/min: 2300 Charge press. hPa: 1000 KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00 quantity cm3/10s: (40.60154.00) Delivery-quant. and breakaway char.: 1nd speed 1/min: 1100 Charge-air pressure-setting point hPa: 350 KSB/ĀFB valve Volt: 12 Shutoff electromagnet Volt: 12

Charge press.	hPa:	1000	- Shutoff
KSB/AFB		10	- electromagnet Volt: 12
valve	Volt:	12	- Del. quantity cm3/: 38.0041.00
Shutoff		+	- 1000s.: (37,0042.00)
electromagnet			-
Del. quantity			- Mech. shutoff:
11	0003.:	(0.003.00)	•
3rd speed	1/min:	2700	- Electr. shutoff:
Charge press.	hPa:	100c -	•
KSB/AFB			- 1st speed 1/min: 450
valve	Volt:	12	- Del. quantity cm3/: 0.003.00
Shutoff		1	10008.: (0.003.00)
electromagnet	Volt:	12	Shutoff
Del. quantity			- electromagnet volt: -
21	nnns	(3.5013.50)	- KSB/AFB
5th speed			valve Volt: 12
Charge press.			vatve voct. 12
KSB/AFE	ura.	1000	Idla dalivamie
	Volt:	10	Idle delivery:
	vott:	12	4 4
Shutoff	uala.	42	1st speed 1/min: 450
electromagnet			- KSB/AFB
vel. quantity	cm3/:	29.0033.00	- valve Volt: 12
		(26.0036.00)	- Shutoff
9th speed '			- electromagnet Volt: 12
Charge press.	hPa:	1000	 Del. quantity cm3/: 10.0014.00
KSB/AFB		+	- 1000s.: (7.0017.00)
valve	Volt:	12 +	- Dispersion cm3/: 2.5
Shutoff		4	- 1000s.: (2.5)
electromagnet	Volt:	12	- 2nd speed 1/min: 550
		40.0043.00	- KSB/AFB
1(000s.	(39.0044.00)	- valve Volt: 12
12th speed			- Shutoff
Charge press.			electromagnet Volt: 12
KSB/AFB	711 14.	1	- Del. quantity cm3/: 0.003.00
	Volt:	12	1000s.: (0.003.00)
Shutoff	vocc.	1	- 3rd speed 1/min: 400
electromagnet	Valt.	12	
			- KSB/AFB
vec. quyntriy	100c -	41.0042.00	- valve Volt: 12
1/46	0005.:	(39.2043.80)	- Shutoff
16th speed			- electromagnet Volt: 12
Charge press.			- Del. quantity cm3/: 20.5025.50
KSB solenoid-			- 1000s.: -
valve	volt:	12 +	•
Shutoff		+	 Automatic starting fuel delivery:
electromagnet			•
Del. quantity	cm3/:	29.0032.00	- 1st speed 1/min: 300
10	DOOH.:	- +	- KSB/AFB
18th speed '	1/min:	750	- valve Volt: 12
Charge press.			- Shutoff
KSB/AFB		1	- electromagnet Volt: 12
	Volt:	12	- Del. quantity cm3/: 37.0057.00
Shutoff		1	- 1000s.: (37.0057.00)
electromagnet	Vol+-	12 I	· · · · · · · · · · · · · · · · · · ·
Del mantitu	cm7/.	28.0029.00	- 2nd speed 1/min: 500
oct. quantity	7000	(25.5031.50)	- Zha speed 17mm: 500 - KSB/AFB
	1/min:		- valve Volt: 12
Charge press.	nra:	1000	- Shutoff
KSB/AFB		12	- electromagnet Volt: 12
valve	Volt:	72	- Del. quantity cm3/: 17.0037.00
		+	- 1000s.: (17.0037.00)

1/min: 100 4th speed

KSB/AFB

Volt: 12 valve

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 35.00...59.00 1000s.: (35.00...59.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 mm: 5.2...5.6 K KF MS mm: 0.8...1.2 nm: 37.2...39.2 Ya mm: 40.4...49.0

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

A = KSB adjustment point B = KSB curve point

Pump with slave plunger

Note inst. in remarks column

Test scheet : WW Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/8F2300R536 Type number : 0 460 484 069

Customer Part-No. :

Customer-specific information Customer : VW ECO

Engine : 1.9

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Setting value mm: 3.00...3.40

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250

Setting value bar: 4.90...5.50

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 35.50...36.50

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Low-idle speed regulation

1/min: 450

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 550 Del. quantity cm3/

1000s.: 5.50...6.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2500 Speed

Del. quantity cm3/

1000s.: 18.00...28.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...61.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1250 Speed

Inj.-qty. cm3/

difference 1000S.: -4.5...-10.5 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1250

TD-travel 1/min: 2800 1nd speed difference mm: -0.6...-0.8 # Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 electromagnet Volt: 12 1000s.: -Inspection-pump test specifications Test specifications in parentheses 1/min: 2500 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 18.00...28.00 1000s.: (17.00...29.00) 3rd speed 1/min: 2600 Timing-device characteristic: 2nd speed 1/min: 2000 mm: 5.80...6.60 TD travel Shutoff mm: (5.50...6.90) electromagnet Volt: 12 Del. quantity cm3/: 10.0...14.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 1000s.: (8.00...16.00) 1/min: 2200 5th speed mm: 3.00...3.40 TD travel Shutoff mm: (2.50...3.90) Shutoff electromagnet Volt: 12 1/min: 750 4th speed mm: 0.40...1.20 TD travel Shutoff mm: (0.10...1.50) Shutoff electromagnet Volt: 12 7th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12
Del. quantity cm3/: 30.50...33.50
1000s.: (29.00...35.00) 1st speed 1/min: 2000 Supply-pump pressure bar: 6.90...7.50 1/min: 400 8th speed Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.50...36.50 1000s.: (29.00...39.00) electromagnet Volt: 12 3rd speed 1/min: 1250 Supply-pump bar: 4.90...5.50 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 750 4th speed Electr. shutoff: Supply-pump bar: 3.50...4.10 pressure 1st speed 1/min: 450 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 1000s.: (0.00...3.00) Shutoff Overlow quantity at overflow valve: electromagnet volt: -1st speed 1/min: 750 Damper set qty.: Shutoff electromagnet Volt: 12 LFG-setting: : 41.70...83.40 Overflow solidale con carcassa: cm3/10s: (26.70...98.40) 1/min: 2200 quantity Idle delivery: 2nd speed Shutoff 1/min: 450 1st speed electromagnet Volt: 12 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 7.00...9.00
1000S.: (4.00...12.00)
Dispersion cm3/: 2.0 : 55.60...139.00 Overflow cm3/10s: (40.60...154.00) quantity Delivery-quant. and breakaway char.: 1000s.: (3.0)

High Idle:	+	1st speed 1/min: 308
1-1-5-50	+	Shutoff
1st speed 1/mi: 525	+	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 18.0038.00
electromagnet Volt: 12	†	1000s.: (18.0038.00)
Del. quantity cm3/: 7.009.00	+	
1000s.: (4.0012.00)	+	2nd speed 1/min: 180
	+	Shutoff
Residual:	+	electromagnet Volt: 12
	+	Del. quantity cm3/: 35.0069.00
1.Rotacao 1/min: 550	+	1000s.: -
Shutoff	1	, , , , , , , , , , , , , , , , , , , ,
electromagnet Volt: 12	1	4th speed 1/min: 100
Del. quantity cm3/: 5.506.50	1	Shutoff
1000s.: (4.008.00)	1	electromagnet Volt: 12
2nd speed 1/min: 500	1	Del. quantity cm3/: 35.0061.00
Shutoff	1	10005.: -
electromagnet Volt: 12	Ι	10003
Del. quantity cm3/: 6.008.00	T	Chutoff algetnemannet.
10005.: (4.509.50)	T	Shutoff electromagnet:
10003 (4.)09.)07	T	Contraction
Long description at the All Street	+	Cut-in 10.0
Load-dependent start of delivery:	+	min voltage : 10.0
Injqty.dif.measurement:	Ť	Rated voltage : 12.0
4-4	+	
1st speed 1/min: 1200	+	Mounting and assembly dimensions:
Injqty. cm3/ : -5.57.5 "	+	
difference 1000s.: -	+	Designation
Shutoff	+	K mm: 3.23.4
electromagnet Volt: 12	+	KF mm: 5.15.5
2nd speed 1/min: 1250	+	MS mm: 1.21.4
Injqty. cm3/: 0.0+3.0 Z'	+	Ya mm: 37.641.6
difference 1000s.: -	+	Yb mm: 44.054.0
Shutoff	+	
electromagnet Volt: 12	1	Remarks:
•	+	:
TD-travel dif.measurement:	1	· •
correttore anticipo iniezione (SV):	+	Ya = Distance between VE flange and
1st speed 1/min: 1250	1	speed-control lever in idle
TD-travel : -1.31.7	1	position
difference mm: (-1.02.0)	1	Measurement point = edge of control
Shutoff	1	lever on drive end
electromagnet Volt: 12	Ι	tever on allive end
eteter anagret vott. 12	I	
SP pressdif.measurement:	I	Yb = Distance between VE flange and
pompa di mandata (FP):	T.	
1st speed 1/min: 1250	T	speed-control lever in rated speed
	T	position
Supply pump-	T	Measurement point = edge of control
pressure : -0.10.3 "	†	lever on distributor-head end
difference bar: -	†	
Shutoff 12	†	
electromagnet Volt: 12	+	
2nd speed 1/min: 1250	+	
Supply pump-	+	On initial measurement, screw in
pressure : -0.71.1	+	residual-quantity adjusting screw 2 mm
difference bar: (-0.51.3)'	+	
Shutoff	+	Following pump adjustment, screw out
electromagnet Volt: 12	+	residual-quantity adjusting screw 2 mm
-	+	, , , , , , , , , , , , , , , , , , ,
Automatic starting fuel delivery:	1	7 = Absolute delivery

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 \$.

Note inst. in remarks column

Test scheet : REN : 03.94

replaces :-

Calibrating oil : ISO-4113

Injection pump : VE4/8F2050R588 Type number : 0 460 484 073

Customer Part-No.:

Customer—specific information Customer : RENAULT

Engine : F8Q - 640

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp. °C

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening .

Pressure bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery
Prestroke mm: (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500

Setting value mm: 2.40...2.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1500

Setting value bar: 6.50...7.10

Shutoff

electromagnet Voit: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250

Del. quantity cm3/

1000s.: 33.00...34.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000S.: (3.0)

Low-idle speed regulation

Speed 1/min: 410

Del. quantity cm3/

1000s.: 7.50...11.50

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500

Del. quantity cm3/

1000s.: 1.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2150

Del. quantity cm3/

1000s.: 24.50...30.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100

Del. quantity cm3/: 40.00...70.00

mind 1000s.: 40.00

Shutoff

electromagnet Volt: 12

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000

TD travel mm: 4.60...5.40 mm: (4.30...5.70)

Shutoff

electromagnet Volt: 12 3rd speed 1/min: 1500

	402.80	Shutoff
	1.903.30)	electromagnet Volt: 12
Shutoff	<u> </u>	Del. quantity cm3/: 29.2031.20
electromagnet Volt: 12		1000\$.: (27.9032.50)
4th speed 1/min: 12		10th speed 1/min: 1625
	.001.80	Shutoff
).702.10)	electromagnet Volt: 12
Shutoff	+	Del. quantity cm3/: 30.4033.40
electromagnet Volt: 12	,	1000s.: (29.6034.20)
_	+	12th speed 1/min: 1250
Supply-pump pressure c	characteristic:	Shutoff
	+	electromagnet Volt: 12
1st speed 1/min: 50	10 1	Del. quyntity cm3/: 33.0034.00
Supply-pump	1	1000s.: (31.2035.80)
	504.10	15th speed 1/min: 750
Shutoff		Shutoff
electromagnet Volt: 12	• 1	electromagnet Volt: 12
2nd speed 1/min: 15		Del. quantity cm3/: 32.5035.50
Supply-pump	1	1000s.: (31.7036.30)
pressure bar: 6.	50 7 10	20th speed 1/min: 500
Shutoff	7	Shutoff
electromagnet Volt: 12	, T	
3rd speed 1/min: 20	in T	electromagnet Volt: 12
	w †	Del. quantity cm3/: 31.5034.50
Supply-pump	70 0 40	1 000 \$.: (30.7035.30)
	008.60	
Shutoff	, †	Mech. shutoff:
electromagnet Volt: 12	' †	
0	†	Electr. shutoff:
Overlow quantity at ov	vertiow valve:	4
4	_ +	1st speed 1/min: 410
1st speed 1/min: 50	N +	Del. quantity cm3/: 0.003.00
Shutoff	. +	1000s.: (0.003.00)
electromagnet Volt: 12	}	Shutoff
Overflow : 41	.7086.10	electromagnet volt: -
quantity cm3/10s: (2	?6.70101.10) 	
2nd speed 1/min: 20)OO +	Damper set qty.:
Shutoff	+	·
electromagnet Volt: 12		LFG-setting:
Overflow : 55	5.60139.00	solidale con carcassa:
quantity cm3/10s: (4	·0.60154.00) +	Idle delivery:
•	+	•
Delivery quant. and br	eakaway char.: \downarrow	1st speed 1/min: 410
• ,	+	Shutoff
	1	electromagnet Volt: 12
2nd speed 1/min: 25	550 	Del. quantity cm3/: 7.5011.50
Shutoff	1	1000s.: (5.5013.50)
electromagnet Volt: 12	·	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Del. quantity cm3/: 0.		High Idle:
).005.00)	Trigit 1000
3rd speed 1/min: 22		1st speed
Shutoff	1	Shutoff
electromagnet Volt: 12	·	electromagnet Volt: 12
Del. quantity cm3/: 12		Del. quantity cm3/: 7.0011.00
10000 . (1)	1.0021.00)	
5th speed 1/min: 21		1000s.: (5.0013.00)
Shutoff	1	Posidual :
	, †	Residual:
electromagnet Volt: 12		1 Determine 4 / 500
Del. quantity cm3/: 24		1. Rotacao 1/min: 500
	3.5031.50)	Shutoff
9th speed 1/min: 20	iU +	electromagnet Volt: 12

Del. quantity cm3/: 1.00...5.00 1000s.: (1.00...5.00) Automatic starting fuel delivery: 1st speed 1/min: 210 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...75.00 1000s.: (45.00...75.00) 2nd speed 1/min: 310 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 15.00...45.00 1000S.: (15.00...45.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 40.00...70.00 1000s.: (40.00...70.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: 5.3...5.5 MS mm: 1.2...1.4 SVS max. mm: 3.3 Ya mm: 16.0...20.0 Yb mm: 65.9...77.7 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

ccm/1000 S.

Permissible port/port scatter with stop test, electrical = max. 5.0

Note inst. in remarks column:

Test scheet : 03.94 Edition

replaces

Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L358-4 Type number : 0 460 485 007

Customer Part-No. :

Customer-specific information

Customer

Engine : 2,41 SD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Low-idle speed regulation

1/min: 415 Speed

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 540 Speed

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00

mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500

Inj.-qty. cm3/

difference 1000s.: -3.50...-9.50 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV) 1.Speed 1/min: 1500

TD-travel 1/min: 2600 3rd speed difference mm: -0.30..-0.50# Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000s.: (0.00...6.00)
5th speed 1/min: 2400 Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...14.00 1000s.: (8.00...16.00) Timing-device characteristic: 1/min: 1790 1/min: 2300 2nd speed 8th speed mm: 5.30...6.10 TD travel Shutoff mm: (5.00...6.40) electromagnet Volt: 12
Del. quantity cm3/: 17.00...27.00
1000S.: (16.00...28.00)
9th speed 1/min: 2100 Shutoff 9th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00...32.00 1000\$.: (28.80...33.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 1/min: 1250 12th speed mm: 0.30...1.10 TD travel Shutoff mm: (0.00...1.40) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...35.00 1000s.: (30.50...36.50) 1/min: 600 1st speed Supply-pump pressure bar: 3.80...4.40 Shutoff Mech. shutoff: electromagnet Volt: 12 2nd speed 1/min: 1250 Electr. shutoff: Supply-pump bar: 5.70...6.30 pressure 1st speed 1/min: 415 Shutoff Del. quantity cm3/: 0.00...3.00 1000s.: (0.00...3.00) electromagnet Volt: 12 3rd speed 1/min: 2100 Shutoff Supply-pump electromagnet volt: pressure bar: 8.10...8.70 Shutoff Damper set qty.: electromagnet Volt: 12 LFG-setting: Overlow quantity at overflow valve: solidale con carcassa: Idle delivery: 1st speed 1/min: 600 Shutoff 1st speed 1/min: 415 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00) : 41.70...83.40 Overflow cm3/10s: (26.80...98.40) 1/min: 2100 quantity 2nd speed Shutoff electromagnet Volt: 12 High Idle: Overflow : 55.60...152.90 cm3/10s: (41.70...167.90) quantity 1st speed 1/mi: 465 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1009s.: (4.00...12.00) Delivery-quant. and breakaway char.:

Residual: 1.Rotacao 1/min: 540 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...7.50 1000s.: (6.00...10.00) 1/min: 490 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.80...8.80 1000S.: (6.30...11.30) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1500 Inj.-qty. cm3/ : -6.0...-8.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Inj.-qty. cm3/: 0.0...+3.0 Z' Inj.-qty. difference 100CS .: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 : -1.7...-2.1 ' mm: (-1.3...-2.50)' TD-travel difference Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: -0.10..-0.30" pressure difference bar: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Supply pump-: -0.8...-1.2 ' pressure difference bar: -Automatic starting fuel delivery: 1/min: 180 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000S.: (35.00...85.00) 1/min: 380 2nd speed

Del. quantity cm3/: 17.00...37.00 1000S.: (17.00...37.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12
Del. quantity cm3/: 35.00...85.00
1000S.: (35.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 K KF mm: KOT MS mm: 1.3...1.5 SVS max. mm: 1.9 mm: 32.8...34.8 mm: 60.5...71.5 Yb Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor—head end On initial measurement, screw in residual-quantity adjusting screw 2 mm. Following pump adjustment, screw out residual-quantity adjusting screw 2 mm. Z = Absolute delivery

Shutoff

electromagnet Volt: 12

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L453-4 Type number : 0 460 485 009

Customer Part-No.:

Customer-specific information

Customer : VW

Engine : 2,41 WK T4 KLIMA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Low-idle speed regulation

1/min: 415 Speed

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1500 Speed

cm3/Inj.-qty.

difference 1000s.: -3.50...-9.50 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel 3rd speed 1/min: 2600 difference mm: -0.30..-0.50# Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000s.: (0.00...6.00) 5th speed 1/min: 2400 electromagnet Volt: 12 Inspection-pump test specifications 5th speed Test specifications in parentheses Shutoff Timing-device characteristic: 1/min: 1790 mm: 5.30...6.10 mm: (5.00...6.40) 2nd speed TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 17.00 ... 27.00
1000s.: (16.00... 28.00) Shutoff electromagnet Volt: 12 1/min: 1250 3rd speed 9th speed 1/min: 2100 TD travel mm: 2.20...2.60 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 30.00 . 32.00 1000S.: (28.80...33.20) mm: (1.70...3.10)Shutoff electromagnet Volt: 12
4th speed 1/min: 1000
TD travel mm: 0.30...1.10 1/min: 1250 12th speed Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 36.00...37.00
1000s.: (34.30...38.70) mm: (0.00...1.40) Shutoff electromagnet Volt: 12 1/min: 600 20th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...35.00 1000S.: (30.50...36.59) 1st speed 1/min: 600 Supply-pump bar: 3.80...4.40 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 1250 2nd speed Electr. shutoff: Supply-pump bar: 5.70...6.30 pressure 1st speed 1/min: 415 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 1000s.: (0.00...3.00) 3rd speed Shutoff Supply-pump electromagnet volt: pressure bar: 8.10...8.70 Shutoff Damper set qty.: electromagnet Volt: 12 LFG-setting: Overlow quantity at overflow valve: solidale con carcassa: Idle delivery: 1st speed 1/min: 600 Shutoff 1st speed 1/min: 415 electromagnet Volt: 12 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00) : 41.70...83.40 Overflow quantity cm3/10s: (26.80...98.40) 1/min: 2100 2nd speed Shutoff electromagnet Volt: 12 High Idle: : 55.60...152.90 cm3/10s: (41.70...167.90) Overflow quantity 1st speed 1/mi: 465 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 Delivery-quant. and breakaway char.: 1000s.: (4.00...12.00)

Residual: 1/min: 540 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...7.50 1000s.: (6.00...10.00) 2nd speed 1/min: 490 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.80...8.80 1000s.: (6.30...11.30) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1st speed 1/min: 1500 Inj.-qty. cm3/ : -6.0...-8.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 cm3/: 0.0...+3.0 Z' Inj.-qty. difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 : -1.7...-2.1 ' TD-travel difference mm: (-1.3...-2.50) Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: -0.10..-0.30" pressure difference bar: -Shutoff electromagnet Volt: 12 1/min: 1500 2nd speed Supply pump-: -0.8...-1.2 ' pressure difference bar: -Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000S.: (35.00...85.00) 2nd speed 1/min: 380

Del. quantity cm3/: 17.00...37.00 1000s.: (17.00...37.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: KOT MS mm: 1.3...1.5 SVS max. mm: 1.9 mm: 32.8...34.8 Ya mm: 62.5...68.5 Yb Ajustement Potentiometer: Supply voltage pot. volt: 5.0 Cutput volt 8.0 :tlov pot. Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end On initial measurement, screw in residual-quantity adjusting screw 2 mm. Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

Shutoff

electromagnet Volt: 12

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

: VE5/8F2100L457 injection pump : 0 460 485 010 Type number

Customer Part-No. :

Customer-specific information

Customer

Engine : 2,41 SD T4

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 415

Del. quantity cm3/

1**000**s.: 7.**0**0...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540

Del. quantity cm3/

1**000**\$.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...61.00

1000s.: 35.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1500 Speed

cm3/Inj.-gty.

difference 1000s.: -3.50...-9.50 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel 1/min: 2600 3rd speed difference mm: -0.30..-0.50# Shutoff Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff Timing-device characteristic: 1/min: 1790 2nd speed mm: 5.30...6.10 TD travel Shutoff mm: (5.00...6.40) electromagnet Volt: 12 Del. quantity cm3/: 17.00...27.00 1000s.: (16.00...28.00) 9th speed 1/min: 2100 Shutoff electromagnet Volt: 12 1/min: 1250 3rd speed 9th speed mm: 2.20...2.60 mm: (1.70...3.10) TD travel Shutoff electromagnet Volt: 12
Del. quantity cm3/: 30.00...32.00
1000s.: (28.80...33.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 1/min: 1250 12th speed TD travel mm: 0.30...1.10 Shutoff mm: (0.00...1.40) electromagnet Volt: 12 Del. quyntity cm3/: 36.00...37.00 1000s.: (34.30...38.70) 20th speed 1/min: 600 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.00...35.00 1000s.: (30.50...36.50) 1st speed 1/min: 600 Supply-pump pressure bar: 3.80...4.40 Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 1250 2nd speed Electr. shutoff: Supply-pump bar: 5.70...6.30 pressure 1st speed 1/min: 415 Del. quantity cm3/: 0.00...3.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 1000s.: (0.00...3.00) 3rd speed Shutoff Supply-pump electromagnet volt: bar: 8.10...8.70 pressure Shutoff Damper set qty.: electromagnet Volt: 12 LFG-setting: Overlow quantity at overflow valve: solidale con carcassa: Idle delivery: 1st speed 1/min: 600 Shutoff 1st speed 1/min: 415 electromagnet Volt: 12 Shutoff : 41.70...83.40 electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00) Overflow cm3/10s: (26.80...98.40) 1/min: 2100 quantity 2nd speed Shutoff electromagnet Volt: 12 Residual: : 55.60...152.90 Overflow cm3/10s: (41.70...167.90) quantity 1/min: 540 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...7.50 1000s.: (6.00...10.00) Delivery-quant. and breakaway char.:

2nd speed 1/min: 490

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 6.80...8.80 1000s.: (5.30...10.80)

Load-dependent start of delivery: Inj.-gty.dif.measurement:

1/min: 1500 2nd speed

cm3/: 0.0...+3.0 Z Inj.-qty.

difference 1000S.: -

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement:

correttore anticipo iniezione (SV): 1st speed 1/min: 1500

TD-travel : -1.7...-2.1 '

mm: (-1.3...-2.50) difference

Shutoff

electromagnet Volt: 12 1/min: 1500 2nd speed

Supply pump-

pressure : -0.8...-1.2 '

difference bar: -

Shutoff

electromagnet Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 130

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 35.00...69.00

1000s.: (35.00...69.00)

2nd speed 1/min: 380

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 17.00...37.00

1000s.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 35.00...61.00 1000s.: (35.00...61.00)

Shutoff electromagnet:

Cut-in

: 10.0 min voltage : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4

KF mm: KOT

M17

mm: 1.3...1.5

mm: 1.9 SVS max.

mm: 32.8...34.8 mm: 60.5...71.5 Ya Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control

lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L545 : 0 460 485 017 Type number

Customer Part-No. :

Customer-specific information Customer : VW 153

: 2,4L T4 Engine

TEST DENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250

Del. quantity cm3/ 1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0 1000s.: (3.0)

Low-idle speed regulation

1/min: 415

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00

1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

Speed 1/min: 1500 Charge press hPa: 12

Inj.-qty. cm3/

difference 1000s.: -3.50...-9.50 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500 TD-travel 3rd speed 1/min: 2600 difference mm: -0.30..-0.50# Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000s.: (0.00...6.00)
5th speed 1/min: 2400 Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...14.00 1000s.: (8.00...16.00) 8th speed 1/min: 2300 Timing-device characteristic: 2nd speed 1/min: 1790 TD travel mm: 5.00...5.80 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.00...27.00 1000s.: (16.00...28.00) mm: (4.70...6.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 TD travel mm: 2.20...2.60 9th speed 1/min: 2100 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 30.00...32.00
1000s.: (28.80...33.20)
12th speed 1/min: 1250 mm: (1.70...3.10) Shutoff electronagnet Volt: 12 1/min: 1000 4th speed mm: 0.70...1.50 TD travel Shutoff electromagnet Volt: 12
Del. quyntity cm3/: 36.00...37.00
1000s.: (34.30...38.70) mm: (0.40...1.80) Shutoff electromagnet Volt: 12 1/min: 600 20th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.30...35.30 1000s.: (30.80...36.80) 1st speed 1/min: 1000 Supply-pump pressure bar: 5.00...5.60 Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 1250 2nd speed Electr. shutoff: Supply-pump bar: 5.70...6.30 pressure Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 1000s.: (0.00...3.00) 3rd speed Shutoff Supply-pump electromagnet volt: bar: 7.20...7.80 pressure Shutoff Damper set qty.: electromagnet Volt: 12 LFG-setting: solidale con carcassa: Idle delivery: Overlow quantity at overflow valve: 1st speed 1/min: 600 Shutoff 1st speed 1/min: 415 electromagnet Volt: 12 Shutoff : 41.70...83.40 Overflow electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 cm3/10s: (26.80...98.40) 1/min: 2100 quantity 2nd speed 1000s.: (4.00...12.00) Shutoff electromagnet Volt: 12 Residual: : 55.60...152.90 Overflow quantity cm3/10s: (41.70...167.90) 1/min: 540 1.Rotacao Shutoff Delivery-quant. and breakaway char.: electromagnet Volt: 12

Del. quantity cm3/: 6.50...7.50 1000s.: (5.00...9.00) 2nd speed 1/min: 490 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.80...8.80 1000s.: (5.30...10.30) Load-dependent start of delivery: Inj. -qty.dif.measurement: 1/min: 1500 1st speed Inj.-qty. cm3/ : -6.0...-8.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 1/min: 1500 2nd speed cm3/: 0.0...+3.0 Z' Inj.-gty. difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 TD-travel : -1.9..-2.3 Z' difference mm: (-1.5...-2.70) Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1/min: 1500 1st speed Supply pumppressure : -0.10..-0.30" difference bar: -Shutoff electromagnet Volt: 12 1/min: 1500 2nd speed Supply pump-: -0.8...-1.2 ' pressure difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) 2nd speed 1/min: 380 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.00...37.00 1000s.: (17.00...37.00)

Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation mm: 3.2...3.4 KF mm: 5.6...6.0 mm: 1.3...1.5 MS SVS max. mm: 4.9 mm: 32.8...34.8 Ya mm: 60.5...71.5 Yb Ajustement Potentiometer: Supply voltage volt: 5.0 pot. Output volt volt: 0.8 pot. Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

M20

4th speed

1/min: 100

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE5/8F2100L545-4 Type number : **0** 460 485 018

Customer Part-No. :

Customer-specific information

Customer

Engine : 2,41 SD T4 KLIMA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil •€ return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 2.20...2.60

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.70...6.30

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 36.00...37.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.0

1000s.: (3.0)

Low-idle speed regulation

1/min: 415 Speed

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2400 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...85.00

1000s.: 35.00 mind

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1/min: 1500 Speed

cm3/Inj.-qty.

difference 1000s.: -3.50...-9.50 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1/min: 1500 1.Speed

TD-travel 1/min: 2600 3rd speed difference mm: -0.30..-0.50# Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2400 Shutoff electromagnet Volt: 12 Inspection-pump test specifications Test specifications in parentheses Shutoff electromagnet Volt: 12 Del. quantity cm3/: 10.00...14.00 10005.: (8.00...16.00) Timing-device characteristic: 2nd speed 1/min: 1790 1/min: 2300 8th speed mm: 5.30...6.10 TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 17.00...27.00 1000S.: (16.00...28.00) mm: (5.00...6.40) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 TD travel mm: 2.20...2.60 1/min: 2100 9th speed Shutoff mm: (1.70...3.10) electromagnet Volt: 12 Del. quantity cm3/: 30.00...32.00 Shutoff 1**000**\$.: (28.80...33.20) electromagnet Volt: 12 1/miri: 1000 4th speed 1/min: 1250 12th speed TD travel mm: 0.30...1.10 Shutoff electromagnet Volt: 12 Del. quyntity cm3/: 36.00...37.00 1000s.: (34.30...38.70) mm: (0.00...1.40) Shutoff electromagnet Volt: 12 1/min: 600 20th speed Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 32.30...35.30 1000s.: (30.80...36.80) 1/min: 1000 1st speed Supply-pump bar: 5.00...5.60 pressure Shutoff Mech. shutoff: electromagnet Volt: 12 1/min: 1250 2nd speed Electr. shutoff: Supply-pump bar: 5.70...6.30 pressure 1/min: 415 1st speed Del. quantity cm3/: 0.00...3.00 Shutoff 1000s.: (0.00...3.00) electromagnet Volt: 12 3rd speed 1/min: 1790 Shutoff Supply-pump electromagnet volt: bar: 7.20...7.80 pressure Shutoff Damper set qty.: electromagnet Volt: 12 LFG-setting: Overlow quantity at overflow valve: solidale con carcassa: Idle delivery: 1/min: 600 1st speed Shutoff 1/min: 415 1st speed electromagnet Volt: 12 Snutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 1000S.: (4.00...12.00) : 41.70...83.40 Overflow quantity cm3/10s: (26.80...98.40) 2nd speed 1/min: 2100 Shucoff electromagnet Volt: 12 High Idle: : 55.60...152.90 cm3/10s: (41.70...167.90) Overflow quantity 1/mi: 450 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...9.00 Delivery-quant. and breakaway char.: 1000s.: (4.00...12.00)

Residual: 1/min: 540 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...7.50 1000s.: (5.00...9.00) 1/min: 490 2nd speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.80...8.80 1000s.: (5.30...10.30) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Inj.-qty. cm3/ : -6.0...-8.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Inj.-qty. cm3/: 0.0...+3.0 Z' difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 : -1.7...-2.1 ' mm: (-1.3...-2.50)' TD-travel difference Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: -0.10..-0.30" pressure difference bar: -Shutoff electromagnet Volt: 12 1/min: 1500 2nd speed Supply pumppressure : -0.8...-1.2 ' difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 17.00...37.00 1**0005.: (17.00...3**7.00) 1/min: 100 4th speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0 Rated voltage : 12.0 Mounting and assembly dimensions: Designation K mm: 3.2...3.4 KF mm: 5.6...6.0 MS mm: 1.3...1.5 SVS max. mm: 1.9 Ya mm: 32.8...34.8 mm: 60.5...71.5 Remarks: Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end On initial measurement, screw in residual-quantity adjusting screw 2 mm. Following pump adjustment, screw out residual-quantity adjusting screw 2 mm. Z = Absolute delivery

Shutoff

2nd speed

electromagnet Volt: 12

Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

1/min: 380

Note inst. in remarks column

Test scheet : VWW : 03.94 Edition

replaces

Calibrating oil : ISO-4113

Injection bump : VE5/8F2100L457-1 : 0 460 485 019 Type number

Customer Part-No. :

Customer-specific information

Customer

: 2,4L WK-SD T4 CAMPER Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Openina |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500

Setting value mm: 4.10...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500

Setting value bar: 7.10...7.70

Shutoff

electromagnet Volt: 12

Full-load del. w/out charge press.:

1/min: 1250

Del. quantity cm3/

1000s.: 35.00...36.00

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (3.0)

Low-idle speed regulation

1/min: 415 Speed

Del. quantity cm3/

1000s.: 7.00...9.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 540 Speed

Del. quantity cm3/

1000s.: 6.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 35.00...85.00 mind 1000s.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

1/min: 1500 Speed cm3/

Inj.-qty.

difference 1000s.: -7.50..-13.50 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1500

TD-travel difference mm: -1.101.30# Shutoff	+ 2nd speed 1/min: 2600 + Shutoff + electromagnet Volt: 12
electromagnet Volt: 12	Del. quantity cm3/: 0.006.00 1000s.: (0.006.00)
Inspection-pump test specifications Test specifications in parentheses	+ 5th speed 1/min: 2400 + Shutoff
Timing-device characteristic:	+ electromagnet Volt: 12 + Del. quantity cm3/: 10.0014.00 + 100US.: (8.0016.00)
2nd speed 1/min: 1790 TD travel mm: 5.906.70	+ 8th speed 1/min: 2300 + Shutoff
mm: (5.607.00) Shutoff electromagnet Volt: 12	electromagnet Volt: 12 bel. quantity cm3/: 17.0027.00 1000s.: (16.0028.00)
3rd speed 1/min: 1500	9th speed 1/min: 2100
TD travel mm: 4.104.50	+ Shutoff
mm: (3.605.00)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 28.5030.50
electromagnet Volt: 12	1000s.: (27.3031.70)
4th speed	† 10th speed 1/min: 1850 + Shutoff
mm: (0.902.30)	
Shutoff	+ electromagnet Volt: 12 + Del. quantity cm3/: 29.5035.50
electromagnet Volt: 12	10008.: -
Supply-pump pressure characteristic:	12th speed 1/min: 1250 Shutoff
	electromagnet Volt: 12 Del. quyntity cm3/: 35.0036.00
1st speed 1/min: 1100 Supply-pump	+ 1000S.: (33.3037.70)
pressure bar: 5.906.50 Shutoff	20th speed 1/min: 600 Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1500 Supply-pump	+ Del. quantity cm3/: 31.8034.80 + 1000S.: (30.3036.30)
pressure bar: 7.107.70	T 10003 (30.3030.30)
Shutoff	Mech. shutoff:
electromagnet Volt: 12	+
3rd speed 1/min: 1790	+ Electr. shutoff:
Supply-pump pressure bar: 7.808.40	1st speed 1/min: 415
Shutoff	Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	10008.: (0.003.00)
-	+ Shutoff
Overlow quantity at overflow valve:	+ electromagnet volt: -
1st speed 1/min: 600 Shutoff	Damper set qty.:
electromagnet Volt: 12	+ LFG-setting:
Overflow : 41.7083.40	+ solidale con carcassa:
quantity cm3/10s: (26.8098.30) 2nd speed	+ Idle delivery:
Shutoff	1st speed 1/min: 415
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60152.90	electromagnet Volt: 12
quantity cm3/10s: (40.70167.90)	Pel. quantity cm3/: 7.009.00
Delivery-quant. and breakaway char.:	1000s.: (4.0012.00)
Decircity quarter and bi canaway that	Residual:
	•

1.Rotacao 1/min: 540 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.50...7.50 1000s.: (5.00...9.00) 2nd speed 1/min: 490 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.80...8.80 1000s.: (5.30...10.30) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1500 1st speed Inj.-qty. cm3/ : -6.0...-8.0 " difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 cm3/: C.O...+3.0 Z¹ Inj.-qty. difference 1000s.: -Shutoff electromagnet Volt: 12 TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1500 : -1.9...-2.3 ' mm: (-1.5...-2.7)' TD-travel difference Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1500 Supply pump-: -0.10...0.30" pressure difference bar: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1500 Supply pump-: -0.8...-1.2 ' pressure difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 180 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00) 2nd speed 1/min: 380

Del. quantity cm3/: 17.00...37.00 1000S.: (17.00...37.00) 4th speed 1/min: 100 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000S.: (35.00...85.00) Shutoff electromagnet: Cut-in min voltage : 10.0

Mounting and assembly dimensions:

: 12.0

Remarks:

Rated voltage

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Shutoff

electromagnet Volt: 12

Note inst. in remarks column

: REN Test scheet Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2250R449 Type number : 0 460 494 297

Customer Part-No. :

Customer-specific information

Customer : RNUR

: J8S - 786 R21 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 022

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing device travel

1/min: 1250 Charge press. hPa: 1000

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Charge press hPa: 1000 Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/ 1000s.: 51.00...52.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 38.50...39.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 425

Del. quantity cm3/

1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2,5)

Residual-Delivery Setting

Speed 1/min: 525

Del. quantity cm3/

1000s.: 3.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500 Charge press hPa: 1000

Del. quantity cm3/

1000s.: 7.50...13.50

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 50.00...90.00 mind 1000s.: 50.00

Shutoff

electromagnet Volt: 12

M27

Supply-pump Load-dependent start of delivery: bar: 7.50...8.10 pressure Inj.-qty.dif.measurement: Shutoff electromagnet Volt: 12 Speed 1/min: 1250 Charge press hPa: -Overlow quantity at overflow valve: Inj. aty. cm3/difference 1000s.: -7.50..-11.50 # 1st speed 1/min: 750 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 TD-travel dif.measurement electromagnet Volt: 12 Overflow : 41.70...86.10 quantity cm3/10s: (26.70...101.10) 2nd speed 1/min: 2125 Charge press | 1/min: 41.70...86.10 correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 Charge press hPa: -TD-travel Charge press. hPa: 1000 difference mm: -1.2...-1.4 # Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 Overflow : 55.60...139.00 quantity cm3/10s: (40.60...154.00) Inspection pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1/min: 750 1nd speed 1/min: 2125 2nd speed Charge-air pressure-setting Charge press hPa: 1000 hPa: 300 point mm: 6.80...7.60 mm: (6.50...7.90) TD travel LDA-stroke mm: 6.4 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 45.50...46.50
1000S.: (43.00...49.00)
2nd speed 1/min: 2700 Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 hPa: 1000 mm: 3.40...3.80 mm: (3.10...4.50) Charge press TD travel Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 1000 5th speed 1/min: 2500 TD travel mm: 2.10...2.90 Charge press. hPa: 1000 mm: (2.00...3.40) Shutoff electromagnet Volt: 12
Del. quantity cm3/: 7.50...13.50
1000S.: (6.50...14.50)
8th speed 1/min: 2350 Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Charge press. hPa: 1000 1st speed 1/min: 1000 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 29.50...37.50
1000S.: (28.50...38.50)
9th speed 1/min: 2125
Charge press. hPa: 1000
Shutoff Charge press. hPa: 1000 Supply-pump bar: 4.40...5.00 pressure Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 electromagnet Volt: 12 Del. quantity cm3/: 48.10...50.10 1000s.: (46.80...51.40) Supply-pump pressure bar: 5.10...5.70 Shutoff 1/min: 1625 11th speed electromagnet Volt: 12 Charge press. hPa: 1000 1/min: 2125 3rd speed Shutoff Charge press. hPa: 1000 electromagnet Volt: 12

Del. quantity cm3/: 1000s.: 12th speed 1/min: Charge press. hPa: Shutoff	(47.6052.20) 1250	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.507.50 1000s.: (3.507.50)
electromagnet Volt: Del. quyntity cm3/:	12 51.0052.00 (49.2053.80)	Load-dependent start of delivery: Injqty.dif.measurement:
15th speed 1/min: Charge press. hPa: Shutoff	1000	1st speed 1/min: 1250 tharge press. hPa: - Injqty. cm3/ : -4.56.5 "
	50.6053.60 (49.1055.10)	difference 1000s.: - Shutoff electromagnet Volt: 12
16th speed 1/min: Charge press. hPa: Shutoff	-	
electromagnet volt: Del. quantity cm3/: 1000H.:	36.6039.60 (35.1041.10)	difference 1000s.: - TD-travel dif.measurement:
18th speed 1/min: Charge press. hPa: Shutoff	_	correttore anticipo iniezione (SV) 1st speed 1/min: 1250 Charge press. hPa: -
electromagnet Volt: Del. quantity cm3/: 1000s.:		TD-travel : -1.92.7 ' difference mm: - Shutoff
Mech. shutoff:		electromagnet Volt: 12
Electr. shutoff:		SP pressdif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250
1st speed 1/min: Del. quantity cm3/: 1000s.:		Charge press. hPa: - Supply pump- pressure : -0.10.3 "
Shutoff electromagnet volt:		difference bar: - Shutoff electromagnet Volt: 12
Damper set qty.:		Part-load del.at 3rd injqty.
LFG-setting: solidale con carcass Idle delivery:	sa:	terza fermo della portata stop (EGR set) scarico) (ARF)
1st speed 1/min: Shutoff	425	gaz d'échappement-ARF) - Spacing mm: 12.0
electromagnet Volt: Del. quantity cm3/: 1000s.:		1st speed 1/min: 825 Charge press. hPa: 1000 Shutoff
High Idle:		+ electromagnet Volt: 12 + Del. quantity cm3/: 29.5030.50 + 1000S.: (27.5032.50
1st speed 1/mi: Shutoff		Automatic starting fuel delivery:
electromagnet Volt: Del. quantity cm3/: 1000s.:		1st speed 1/min: 250 Shutoff
Residual:		electromagnet Volt: 12 Del. quantity cm3/: 50.0090.00
1.Rotacao 1/min:	525	1000s.: (50.0090.00

NO1

1/min: 350 2nd speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 20.00...50.00

1000s.: (20.00...50.00)

4th speed 1/min: 100

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...90.00

1000s.: (50.00...90.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 KF mm: KOT

MS mm: 1.3...1.5

mm: 2.8 SVS max. LCA stroke mm: 6.4

lever on drive end

XK mm: LD=5.6..6.4 mm: 38.8...42.8 mm: 36.2...45.8 Ya Yb

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Microswitch Gap A = 1.0...2.5 mm Z = Absolute delivery

NO2

Note inst. in remarks column

Test scheet : REN Edition : 03.94

replaces

Calibrating oil : ISO-4113

: VE4/9F2250R449-1 Injection pump Type number : 0 460 494 298

Customer Part-No. :

Customer-specific information Customer

Engine : J8S - 786 R21

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil °C return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery mm: -Prestroke (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 1000

Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed Charge press hPa: 1000

Setting value bar: 5.10...5.70

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 51.00...52.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 750 Speed

Del. quantity cm3/

1000s.: 38.50...39.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2,5)

Residual-Delivery Setting

Speed 1/min: 525

Del. quantity cm3/

1000s.: 3.50...7.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2500 Speed hPa: 1000 Charge press

Del. quantity cm3/

1000s.: 7.50...13.50

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 50.00...90.00

1000s.: 50.00 mind

Shutoff

electromagnet Volt: 12

N03

Supply-pump Load-dependent start of delivery: bar: 7.50...8.10 pressure Inj.-qty.dif.measurement: Shutoff electromagnet Volt: 12 1/min: 1250 Speed Charge press hPa: -Overlow quantity at overflow valve: Inj.-qty. cm3/ difference 1000s.: -7.50..-11.50 # 1st speed 1/min: 750 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 TD-travel dif.measurement electromagnet Volt: 12 correttore anticipo iniezione (SV) Overflow : 41.70...86.10 1/min: 1250 1.Speed cm3/10s: (26.70...101.10) quantity Charge press hPa: -1/min: 2125 2nd speed TD-travel Charge press. hPa: 1000 difference mm: -1.2...-1.4 # Shutoff Shutoff electromagnet Volt: 12 electromagnet Volt: 12 : 55.60...139.00 Overflow duantity cm3/10s: (40.60...154.00) Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1nd speed 1/min: 750 2nd speed 1/min: 2125 Charge-air pressure-setting hPa: 1000 Charge press point hPa: 300 mm: 6.80...7.60 TD travel LDA-stroke mm: 6.4 mm: (6.50...7.90) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.50...46.50 1000S.: (43.00...49.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press hPa: 1000 2nd speed 1/min: 2700 TD travel mm: 3.40...3.80 Charge press. hPa: 1000 mm: (3.10...4.50) Shutoff Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...3.00 1000S.: (0.00...3.00) 5th speed 1/min: 2500 electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 1000 mm: 2.10...2.90 TD travel Charge press. hPa: 1000 Shutoff mm: (2.00...3.40) electromagnet Volt: 12 Del. quantity cm3/: 7.50...13.50 Shutoff electromagnet Volt: 12 1000s.: (6.50...14.50) Supply-pump pressure characteristic: 1/min: 2350 8th speed Charge press. hPa: 1000 1st speed 1/min: 1000 Shutoff Charge press. hPa: 1000 Supply-pump pressure bar: 4.40...5.00 Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Supply-pump Del. quantity cm3/: 48.10...50.10 pressure bar: 5.10...5.70 1000s.: (46.80...51.40) Shutoff 1/min: 1625 11th speed electromagnet Volt: 12 Charge press. hPa: 1000 3rd speed 1/min: 2125 Shutoff Charge press. hPa: 1000 electromagnet Volt: 12

Del. quantity cm3/: 48.9050.90 1000S.: (47.6052.20) 12th speed 1/min: 1250 Charge press. hPa: 1000 Shutoff	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 3.507.50 1000s.: (3.507.50)
electromagnet Volt: 12 Del. quyntity cm3/: 51.0052.00 1000s.: (49.2053.80)	Load-dependent start of delivery: Injqty.dif.measurement:
15th speed 1/min: 1000 Charge press. hPa: 1000 Shutoff	1st speed
electromagnet Volt: 12 Del. quantity cm3/: 50.6053.60 1000s.: (49.1055.10)	difference 1000s.: - Shutoff electromagnet Volt: 12
16th speed 1/min: 1250 Charge press. hPa: -	- 2nd speed 1/min: 1250 - Charge press. hPa: - - Injqty. cm3/: +2.0+8.0'Z
electromagnet volt: 12 Del. quantity cm3/: 36.6039.60 1000H.: (35.1041.10)	difference 1000s.: - TD-travel dif.measurement:
18th speed 1/min: 750 - Charge press. hPa:	correttore anticipo iniezione (SV): - 1st speed 1/min: 1250 - Charge press. hPa: -
electromagnet Volt: 12	TD-travel : -1.92.7 ' difference mm: - Shutof;
Mech. shutoff:	electromagnet Volt: 12
Electr. shutoff:	SP pressdif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250
1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00)	Charge press. hPa: - Supply pump- pressure : -0.10.3 "
Shutoff electromagnet volt: -	difference bar: - Shutoff electromagnet Volt: 12
Damper set qty.:	Part-load del.at 3rd injqty.
LFG-setting: solidale con carcassa: Idle delivery:	terza fermo della portata stop (EGR set) scarico) (ARF)
1st speed 1/min: 425	gaz d'échappement-ARF) Spacing mm: 12.0
electromagnet Volt: 12 - Del. quantity cm3/: 13.0017.00 - 1000S.: (11.0019.00) -	1st speed 1/min: 825 Charge press. hPa: 1000 Shutoff
High Idle:	electromagnet Volt: 12 Del. quantity cm3/: 29.5030.50 1000s.: (27.5032.50)
1st speed 1/mi: 500 - Shutoff - electromagnet Volt: 13	Automatic starting fuel delivery:
electromagnet Volt: 12	1st speed 1/min: 250 Shutoff
Residual:	electromagnet Volt: 12 Del. quantity cm3/: 50.0090.00
1.Rotacao 1/min: 525	1000s.: (50.0090.00)

N05

1/min: 350 2nd speed Shutoff electromagnet Volt: 12

Del. quantity cm3/: 20.00...50.00 1000s.: (20.00...50.00)

4th speed 1/min: 100 Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 50.00...90.00 1000s.: (50.00...90.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 : 12.0 Rated voltage

Mounting and assembly dimensions:

Designation

mm: 3.6...3.8 K KF mm: KOT mm: 1.3...1.5 MS SVS max. mm: 2.8 LDA stroke mm: 6.4 XK mm: LD=5.6..6.4 mm: 38.8...42.8 Ya Yb mm: 36.2...45.8

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control Lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control Lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Microswitch Gap A = 1.0...2.5 mm Z = Absolute delivery

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

: VE4/9F2250R328-7 Injection pump Type number : 0 460 494 312

Customer Part-No.:

Customer-specific information

Customer

: 1.61 TD/LLK B3 Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil •c return temo.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1500 Charge press. hPa: 750

Setting value mm: 3.80...4.20

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1500 Speed Charge press hPa: 750

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 700 Speed

Del. quantity cm3/

1000\$.: 27.60...28.20

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 465

Del. quantity cm3/

1000s.: 12.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (3.0)

Residual-Delivery Setting

1/min: 615 Speed

Del. quantity cm3/

1000s.: 4.00...5.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525 Charge press hPa: 750 Del. quantity cm3/ 1000s.: 13.00...17.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...85.00 mind 1000S.: 35.00

Shutoff

electromagnet Volt: 12

N07

Inspection-pump test specifications Delivery-quant. and breakaway char.: Test specifications in parentheses Timing-device characteristic: 1/min: 900 1nd speed Charge-air pressure-setting point hPa: 300 1/min: 2250 hPa: 750 2nd speed Charge press LDA-stroke mm: 6.10...6.90 mm: (5.80...7.20) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.10...34.70 10005.: (31.40...37.40) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1500 1/min: 2650 2nd speed Charge press hPa: 750 TD travel mm: 3.80 Charge press. hPa: 750 Shutoff mm: 3.80...4.20 electromagnet Volt: 12
Del. quantity cm3/: 0.00...6.00
1000S.: (0.00...6.00)
5th speed 1/min: 2525 mm: (3.30...4.70) Shutoff electromagnet Volt: 12 4th speed 1/min: 1000 Charge press hPa: 750 Charge press. hPa: 750 mm: 1.80...2.60 mm: (1.50...2.90) TD travel Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.00...17.00 1000s.: (11.00...19.00) Shutoff electromagnet Volt: 12 Charge press. hPa: 750 Shutoff Supply-pump pressure characteristic: electromagnet Volt: 12 Del. quantity cm3/: 26.50...36.50 1000s.: (25.50...37.50) 1st speed 1/min: 700 Charge press. hPa: 750 Supply-pump pressure bar: 3.30...3.90 1/min: 2250 9th speed Shutoff Charge press. hPa: 750 electromagnet Volt: 12 2nd speed 1/min: 1500 Charge press. hPa: 750 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 36.30...38.30
1000s.: (35.10...39.50)
12th speed 1/min: 1500 Supply-pump bar: 5.60...6.20 pressure Charge press. hPa: 750 Shutoff Shutoff electromagnet Volt: 12 3rd speed 1/min: 2250 Charge press. hPa: 750 electromagnet Volt: 12
Del. quyntity cm3/: 42.00...43.00
1000s.: (40.30...44.70) Supply-pump pressure bar: 7.70...8.30 1/min: 500 16th speed Charge press. hPa: -Shutoff Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1/min: 700 1st speed Charge press. hPa: - Shutoff Charge press. hPa: -Shutoff electromagnet Volt: 12
Del. quantity cm3/: 27.60...28.20
1000S.: (24.90...30.90)
20th speed 1/min: 700
Charge press. hPa: 750
Shutoff electromagnet Volt: 12 : 41.70...83.40 Overflow cm3/10s: (27.80...97.30) quantity 1/min: 2250 2nd speed Charge press. hPa: 750 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 34.00...37.00 1000s.: (32.50...38.50) electromagnet Volt: 12 : 55.60...152.90 Overflow quantity cm3/10s: (41.70...167.90)

21th speed 1/min: 400 Charge press. hPa: -

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 31.90...34.90 1000s.: (31.70...35.10)

Mech. shutoff:

Electr. shutoff:

1st speed 1/min: 465

Del. quantity cm3/: 0.00...3.00

1**000**s.: (0.00...3.00)

Shutoff

electromagnet volt: -

Damper set gty.:

LFG-setting:

solidale con carcassa:

Idle delivery:

1st speed 1/min: 465

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 12.00...14.00

1**000**s.: (7.50...18.50)

High Idle:

1st speed 1/mi: 515

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 12.00...14.00

1000s.: (8.00...18.00)

Residual:

1/min: 615 1.Rotacao

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 4.00...5.00

1000s.: (1.50...7.50)

2nd speed 1/min: 565

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.50...7.50

1000s.: (3.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 200

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00

1000s.: (35.00...85.00)

4th speed 1/min: 100 Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 35.00...85.00 1000s.: (35.00...85.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

ınm: K1

mm: 5.6...6.0 mm: 1.3...1.5 mm: 3.9 KF MS

SVS max.

mm: 37.6...41.6 Ya mm: 49.9...63.3

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle

position

Measurement point = edge of control

lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed

position

Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R433-3 Type number : 0 460 494 314

Customer Part-No. :

Customer-specific information

Customer

Engine : 1,9 L UD -A3

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil •С return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Charge press. hPa: 750

Setting value mm: 4.30...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hPa: 750

Setting value bar: 5.40...6.00

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/

1000s.: 50.00...51.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 450

Del. quantity cm3/

1000s.: 37.20...43.20

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/ 1000s.: 16.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 550 Speed

Del. quantity cm3/ 1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2600 hPa: 750 Charge press

Del. quantity cm3/

1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100

Del. quantity cm3/: 37.0...43.00 mind 1000s.: 37.0

Shutoff

electromagnet Volt: 12

N10

Supply-pump Load-dependent start of delivery: pressure bar: 7.40...8.00 Inj.-qty.dif.measurement: Shutoff electromagnet Volt: 12 Speed 1/min: 1250 Charge press hPa: -Overlow quantity at overflow valve: Inj.—qty. cm3/ difference 10005:: -7.0...-11.0 # ist speed 1/min: 700 Charge press. hPa: 750 Shutoff Shutoff electromagnet Volt: 12 TD-travel dif.measurement electromagnet Volt: 12 correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 : 41.70...86.10 Overflow cm3/10s: (29.10...98.60) auantity 2nd speed 1/min: 2100 Charge press hPa: -TD-travel Charge press. hPa: 750 mm: -1.9...-2.1 # difference Shutoff Shutoff electromagnet Volt: 12 : 55.60...152.90 cm3/10s: (41.70...167.90) electromagnet Volt: 12 Overflow guantity Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char .: Timing-device characteristic: 1/min: 2750 2nd speed 1/min: 2100 hPa: 750 Charge press. hPa: 750 Shutoff 2nd speed Charge press electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2600
Charge press. hPa: 750 mm: 8.00...8.60 TD travel mm: (7.60...9.00) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press hPa: 750 Shutoff mm: 4.30...4.50 TD travel mm: (3.70...5.10) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press hPa: 750 electromagnet Volt: 12
Del. quantity cm3/: 32.50...42.50
1000s.: (31.50...43.50)
9th speed 1/min: 2100 mm: 1.50...2.10 TD travel mm: (1.10...2.50) Shutoff electromagnet Volt: 12 Charge press. hPa: 750 Supply-pump pressure characteristic: Shutoff Shutoff
electromagnet Volt: 12
Del. quantity cm3/: 42.00...44.00
1000S.: (40.80...45.20)
12th speed 1/min: 1250 1/min: 750 1st speed Charge press. hPa: 750 Supply pump bar: 4.30...4.90 pressure Charge press. hPa: 750 Shutoff Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 electromagnet Volt: 12 Del. quyntity cm3/: 50.00...51.00 1000s.: (48.30...52.70) Charge press. hPa: 750 cutn speed 1/min: 700 Charge press. hPa: 750 Shutoff Supply-pump pressure bar: 5.40...6.00 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2100 Charge press. hPa: 750

Charge press. hPa: - Shutoff electromagnet Volt: 12 Del. quantity cm3/: 37.2043.20 1000S.: (34.7045.70) Mech. shutoff: Electr. shutoff:	TD-travel dif.measurement: correttore anticipo iniezione (SV): 1st speed 1/min: 1250 Charge press. hPa: - TD-travel : -2.502.9' difference mm: - Shutoff electromagnet Volt: 12
ctecti. Sidiori.	SP pressdif.measurement:
1st speed 1/min: 450 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff	pompa di mandata (FP): 1st speed 1/min: 1250 Charge press. hPa: - Supply pump-
electromagnet volt: -	pressure : -0.10.3 "
Damper set qty.:	difference bar: - Shutoff electromagnet Volt: 12
LFG-setting: solidale con carcassa: Idle delivery:	2nd speed 1/min: 1250 Charge press. hPa: - Supply pump-
	pressure : -1.01.4 '
1st speed 1/min: 450 Shutoff	difference bar: -
electromagnet Volt: 12 Del. quantity cm3/: 16.0018.00 1000s.: (13.0021.00)	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set) scarico) (ARF)
High Idle:	gaz d'échappement-ARF)
1st speed 1/mi: 550	- Spacing mm: 12.0
Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.0018.00 1000S.: (13.0021.00)	1st speed 1/min: 1000 Charge press. hPa: 750 Shutoff
Residual:	electromagnet Volt: 12 Del. quantity cm3/: 34.0036.00 1000S.: (32.0038.00)
1.Rotacao 1/min: 550 Shutoff	Automatic starting fuel delivery:
electromagnet Volt: 12 Del. quantity cm3/: 7.008.00 1000S:: (5.509.50)	1st speed 1/min: 180 Shutoff electromagnet Volt: 12
Load-dependent start of delivery:	Del. quantity cm3/: 35.0055.00 1000s.: (35.0055.00)
Inj.—qty.dif.measurement:	2nd speed 1/min: 380
1st speed 1/min: 1250 Charge press. hPa: - Injqty. cm3/ : -4.56.5 "	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.0051.00
difference 1000s.: - Shutoff	1000s.: (31.0051.00)
electromagnet Volt: 12 2nd speed 1/min: 1250	3rd speed 1/min: 100 Shutoff
Charge press. hPa: - Inj.—qty. cm3/: -+0.0+3.0 ' difference 1000S.: - Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 37.0043.00 1000S.: (32.5047.50)
electromagnet Volt: 12	Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8 KF mm: KOT MS mm: 1.0...1.4 Ya mm: 37.6...41.6 Yb mm: 49.9...63.3

Remarks:

Operate control lever after each manifold-pressure compensator pressure change.

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Pump in stepped LDA

Note inst. in remarks column

Test scheet : VWW Edition : 03.94

replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2200R420-14 Type number : 0 460 494 323

Customer Part-No. :

Customer-specific information

Customer

Engine : 1.9L UD B3 Klima

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil °C return temp.

with thermometer : 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 000 assembly

Opening |

bar: 147.00...150.00 Pressure

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 840

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed

Setting value mm: 3.70...4.10

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed

Setting value bar: 5.50...6.10

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250

Det. quantity cm3/

1000s.: 42.00...43.00

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 9.00...11.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

1/min: 575 Speed

Del. quantity cm3/

1000s.: 5.50...6.50

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2600 Speed

Del. quantity cm3/

1000s.: 10.00...14.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 35.00...65.00 mind 1000S.: 35.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery:

Inj.~qty.dif.measurement:

1/min: 1250 Speed

Inj.-qty. cm3/

difference 1000s.: -4.0...-10.0 #

Shutoff

electromagnet Volt: 12

TD-travel dif.measurement correttore anticipo iniezione (SV)

1.Speed 1/min: 1250

TD-travel	† 2nd speed 1/min: 2750
difference mm: -0.60.8 #	† Shutoff
Shutoff	+ electromagnet Volt: 12
electromagnet Volt: 12	+ Del. quantity cm3/: 0.006.00
	+ 1000s.: (0.006.00)
Inspection-pump test specifications	1 3rd speed 1/min: 2600
Test specifications in parentheses	+ Shutoff
•	+ electromagnet Volt: 12
Timing-device characteristic:	+ Del. quantity cm3/: 10.014.00
The second of th	10005:: (8.0016.00)
2nd speed 1/min: 2000	5th speed 1/min: 2500
TD travel mm: 6.607.40	Shutoff
mm: (6.307.70)	
Shutoff	electromagnet Volt: 12
	+ Del. quaritity cm3/: 21.5031.50
electromagnet Volt: 12	10005.: (20.5032.50)
3rd speed 1/min: 1250	+ 8th speed 1/min: 2200
TD travel mm: 3.704.10	+ Shutoff
mm: (3.204.60)	+ electromagnet Volt: 12
Shutoff	+ Del. quantity cm3/: 36.7038.70
electromagnet Volt: 12	10008.: (35.5039.90)
4th speed 1/min: 750	+ 9th speed 1/min: 1250
TD travel mm: 1.602.40	+ Shutoff
mm: (1.302.70)	electromagnet Volt: 12
Shutoff	Del. quantity cm3/: 42.0043.00
electromagnet Volt: 12	
etectromagnet vott: 12	10008.: (40.3044.70)
Committee of the control of the cont	† 12th speed 1/min: 750
Supply-pump pressure characteristic:	· ·
A	+ electromagnet Volt: 12
1st speed 1/min: 750	+ Del. quyntity cm3/: 33.7036.70
Supply-pump	1000s.: (32.2038.20)
pressure bar: 4.304.90	+ 15th speed 1/min: 400
Shutoff	+ Shutoff
electromagnet Volt: 12	+ electromagnet Volt: 12
2nd speed 1/min: 1250	Del. quantity cm3/: 35.5041.50
Supply-pump	10008:: (33.0044.00)
pressure bar: 5.506.10	10000:: (55.00:::47.00)
Shutoff	Mech. shutoff:
	T Mech. Shutoff:
electromagnet Volt: 12	Thomas shows 66.
3rd speed 1/min: 2200	† Electr. shutoff:
Supply-pump	†
pressure bar: 7.708.30	† 1st speed 1/min: 450
Shutoff	+ Del. quantity cm3/: 0.003.00
electromagnet Volt: 12	1000s.: (0.003.00)
	+ Shutoff
Overlow quantity at overflow valve:	<pre>+ electromagnet volt: -</pre>
•	+
1st speed 1/min: 400	Damper set qty.:
Shutoff	
electromagnet Volt: 12	LFG-setting:
Overflow : 41.7083.40	solidale con carcassa:
quantity cm3/10s: (27.8097.30)	
2nd speed 1/min: 2200	† Idle delivery:
	T 1-1 1 1/: /50
Shutoff	+ 1st speed 1/min: 450
electromagnet Volt: 12	+ Shutoff
Overflow : 55.60152.90	+ electromagnet Volt: 12
quantity cm3/10s: (41.70164.90)	
_	1000s.: (6.0014.00)
Delivery-quant. and breakaway char.:	
•	+ High Idle:
	1
	ı

1st speed 1/mi: 500	1.
Shutoff	1st speed 1/min: 1000
electromagnet Volt: 12	Shutoff
Del. quantity cm3/: 9.8011.00	+ electromagnet Volt: 12
1000s.: (6.0014.00)	+ Del. quantity cm3/: 27.0029.00
Dogidus	10008.: (25.0031.00)
Residual:	Automatic stanting fuel delivery
1.Rotacao 1/min: 575	+ Automatic starting fuel delivery:
Shutoff	1st speed 1/min: 180
electromagnet Volt: 12	+ Shutoff
Del. quantity cm3/: 5.506.50	electromagnet Volt: 12
1000s.: (4.008.00)	Del. quantity cm3/: 35.0075.00
2nd speed 1/min: 525 Shutoff	1000s.: (35.0075.00)
electromagnet Volt: 12	2nd speed 1/min: 380
Del. quantity cm3/: 7.309.30	+ Shutoff
1 000 \$.: (5. 80 10.80)	electromagnet Volt: 12
	+ Del. quaritity cm3/: 30.0050.00
Load-dependent start of delivery:	† 1000s.: (30.0050.00)
Injqty.dif.measurement:	/ th annual 1/min. 100
1st speed 1/min: 1250	+ 4th speed 1/min: 100 + Shutoff
Injqty. cm3/ : -5.07.0 "	electromagnet Volt: 12
difference 1000s.: -	+ Del. quantity cm3/: 35.0065.00
Shutoff	1000s.: (35.0065.00)
electromagnet Volt: 12	+
3rd speed	+ Shutoff electromagnet:
difference 1000s.: -	Cut-in
Shutoff	min voltage : 10.0
electromagnet Volt: 12	+ Rated voltage : 12.0
	+
TD-travel dif.measurement:	† Mounting and assembly dimensions:
correttore anticipo iniezione (SV): 1st speed = 1/min: 1250	+ Designation
TD-travel : -1.82.2 #	+ K mm: 3.23.4
difference mm: -	+ KF mm: 5.15.5
Shutoff	+ MS mm: 1.11.5
electromagnet Volt: 12	+ SVS max. mm: 2.9
CD annual difference of the control	+ Ya mm: 37.641.6
SP pressdif.measurement: pompa di mandata (FP):	+ Yb mm: 49.963.3
1st speed 1/min: 1250	Remarks:
Supply pump-	i i
pressure : -0.10.3 "	+
difference bar: -	+ Ya = Distance between VE flange and
Shutoff	+ speed-control lever in idle
electromagnet Volt: 12	+ position
400 C0000 1/MIN 1/NI	
2nd speed 1/min: 1250 Supply pump-	+ Measurement point = edge of control
Supply pump-	tever on drive end
	# Measurement point = edge of control lever on drive end
Supply pump- pressure : -1.11.5 ' difference bar: -	tever on drive end Yb = Distance between VE flange and
Supply pump- pressure : -1.11.5 ' difference bar: - Part-load del.at 3rd injqty.	tever on drive end Yb = Distance between VE flange and speed-control lever in rated speed
Supply pump- pressure : -1.11.5 ' difference bar: - Part-load del.at 3rd injqty. terza fermo della portata	tever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position
Supply pump- pressure : -1.11.5 ' difference bar: - Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set)	tever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control
Supply pump- pressure : -1.11.5 ' difference bar: - Part-load del.at 3rd injqty. terza fermo della portata	tever on drive end Yb = Distance between VE flange and speed-control lever in rated speed position

N16

On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Z = Absolute delivery

Note inst. in remarks column

Test scheet Edition : 03.94

replaces

Calibrating oil : ISG-4113

: VE4/9F2350R309-4 Injection pump Type number : 0 460 494 325

Customer Part-No. :

Customer-specific information Customer : RENAULT

Engine : J8S - 600 CA

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer: 40.00...48.00 Electronically : 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 450 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1125

Setting value mm: 2.60...3.00

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1125

Setting value bar: 4.20...4.80

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1125

Del. quantity cm3/

1000s.: 36.20...37.20

Shutoff

electromagnet Volt: 12 cm3/: 2.5 Dispersion 1000s.: (3.0)

Low-idle speed regulation

1/min: 425 Speed

Del. quantity cm3/

1**0005.: 13.00...**17.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.5 1000s.: (2.5)

Residual-Delivery Setting

1/min: 550 Speed

Del. quantity cm3/

1909s.: 4.00...8.09

Shutoff

electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2500

Del. quantity cm3/

1000s.: 20.00...26.00

Shutoff

electromagnet Volt: 12

Start:

1/min: 100 Speed

Del. quantity cm3/: 52.00...92.00 mind 1000s.: 52.00

Shutoff

electromagnet Volt: 12

Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1125

Inj.-qty. cm3/

difference 1000s.: -11.0...-15.0 #

Shutoff

electromagnet Volt: 12 TD-travel dif.measurement

correttore anticipo iniezione (SV)

1.Speed 1/min: 1125

10-travel	- 2nd speed 1/min: 2/50
difference mm: -0.50.7 #	- Shutoff
Shutoff	- electromagnet Volt: 12
electromagnet Volt: 12	- Del. quantity cm3/: 0.005.00
a contract of the contract of	- 1000s.: (0.005.00)
Inspection when test enseifications	
Inspection-pump test specifications	- 3rd speed 1/min: 2650
Test specifications in parentheses	- Shutoff
+	- electromagnet Volt: 12
Timing-device characteristic:	- Del. quantity cm3/: 2.5010.50
1	- 1000s.: (1.5011.50)
2nd speed 1/min: 2000	- 5th speed 1/min: 2500
TD travel mm: 7.107.90	- Shutoff
mm: (6.808.20)	electromagnet Volt: 12
Shutoff +	- Del. quantity cm3/: 20.0026.00
electromagnet Volt: 12	- 1000s.: (19.0027.00)
3rd speed 1/min: 1125	- 9th speed 1/min: 2250
TD travel mm: 2.603.00	- Shutoff
mm: (2.103.50)	electromagnet Volt: 12
Shutoff	 Del. quantity cm3/: 35.2037.20
electromagnet Volt: 12	- 1000s.: (33.9038.50)
4th speed 1/min: 800	- 10th speed 1/min: 1750
TD travel mm: 0.701.50	- Shutoff
mm: (0.401.80)	· -
	electromagnet Volt: 12
Shutoff	- Del. quantity cm3/: 34.9036.90
electromagnet Volt: 12	- 1000s.: (33.6038.20)
-	12th speed 1/min: 1125
Supply-pump pressure characteristic:	- Shutoff
	electromagnet Volt: 12
1st speed 1/min: 800	Del. quyntity cm3/: 36.2037.20
The state of the s	40000 - (7/ 10 - 70 00)
Supply-pump + 2.40 7.70	1000s.: (34.4039.00)
pressure bar: 3.103.70	- 20th speed 1/min: 800
Shutoff	Ch. A. A.
	- Shutoff
electromagnet Volt: 12	
	electromagnet Volt: 12
electromagnet Volt: 12 2nd speed 1/min: 1125	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump	electromagnet Volt: 12
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000s.: (32.9037.50)
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000s.: (32.9037.50)
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00)
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve:	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: -
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: -
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: -
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow quantity 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10)	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000s.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000s.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery:
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250 Shutoff	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425 Shutoff
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425 Shutoff electromagnet Volt: 12
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 13.0017.00
electromagnet Volt: 12 2nd speed 1/min: 1125 Supply-pump pressure bar: 4.204.80 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Supply-pump pressure bar: 6.507.10 Shutoff electromagnet Volt: 12 Overlow quantity at overflow valve: 1st speed 1/min: 800 Shutoff electromagnet Volt: 12 Overflow : 41.7086.10 quantity cm3/10s: (26.70101.10) 2nd speed 1/min: 2250 Shutoff electromagnet Volt: 12 Overflow : 55.60139.00	electromagnet Volt: 12 Del. quantity cm3/: 33.7036.70 1000S.: (32.9037.50) Mech. shutoff: Electr. shutoff: 1st speed 1/min: 425 Del. quantity cm3/: 0.003.00 1000S.: (0.003.00) Shutoff electromagnet volt: - Damper set qty.: LFG-setting: solidale con carcassa: Idle delivery: 1st speed 1/min: 425 Shutoff electromagnet Volt: 12

1st speed 1/mi: 500 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 8.50...12.50 **1000s.:** (6.50...14.50) Residual: 1.Rotacao 1/mir: 550 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 4.00...8.00 1000s.: (4.00...8.00) Load-dependent start of delivery: Inj.-qty.dif.measurement: 1/min: 1125 1st speed Inj.-qty. cm3/ : -10.0..-12.0" difference 1000s.: -Shutoff electromagnet Volt: 12 2nd speed 1/min: 1125 cm3/: +2.0..+8.0 'Z Inj.-qty. difference 1000s.: -TD-travel dif.measurement: correttore anticipo iniezione (SV): : -1.0..-1.60 ' difference mm: -Shutoff electromagnet Volt: 12 SP press.—dif.measurement: pompa di mandata (FP): 1st speed 1/min: 1125 Supply pumppressure : -0.10..-0.30" difference bar: -Shutoff electromagnet Volt: 12 Automatic starting fuel delivery: 1st speed 1/min: 210 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 45.00...85.00 1000s.: (45.00...85.00) 2nd speed 1/min: 310 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00) 4th speed 1/min: 100 Shutoff

Del. quantity cm3/: 52.00...92.00 1000s.: (52.00...92.00)

Shutoff electromagnet:

Cut-in

min voltage : 10.0 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4 KF mm: 5.3...5.7 MS mm: 1.3...1.7 SVS max. mm: 3.0 mm: LD11.8.12.2 ХK XL mm: LP=0.4..1.5 mm: 37.8...41.8 Ya mm: 45.1...54.9 Yb

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

On initial measurement, screw in residual-quantity adjusting screw 1 mm.

Screw out residual-quantity adjusting screw 1 mm after setting pump.

Z = Absolute delivery

N20

electromagnet Volt: 12

Note inst. in remarks column

: PEU Test scheet Edition : 03.94

replaces

Calibrating oil : ISO-4113

: VE4/9F2250R513 Injection pump : 0 460 494 341 Type number

Customer Part-No. :

Customer-specific information

Customer : PSA

: XUD 9 TF-Y Engine

TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil return temp.

with thermometer : 40.00...48.00 : 42.00...50.00 Electronically

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

: 1 688 901 022 assembly

Opening |

bar: 130.00...133.00 Pressure

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00 x Wall thickness : 2.00 x Length mm: 450

Start of delivery mm: -Prestroke (from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

1/min: 1250 Speed Charge press. hPa: 1000 Setting value mm: 3.40...3.80

Shutoff

electromagnet Volt: 12

Supply-pump pressure

Speed 1/min: 1250 Charge press hea: 1000

Setting value bar: 5.60...6.20

Shutoff

electromagnet Volt: 12

Full-load del. with charge press.:

1/min: 1250 Charge press. hPa: 1000

Del. quantity cm3/

1000s.: 53.50...54.50

Shutoff

electromagnet Volt: 12 cm3/: 2.0 Dispersion 1000s.: (3.0)

Full-load del. w/out charge press.:

Speed 1/min: 500 Del. quantity cm3/

1000s.: 36.50...37.50

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

1/min: 400 Speed

Del. quantity cm3/

1000s.: 12.00...14.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0 1000s.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500 Del. quantity cm3/

1000s.: 6.00...7.00

Shutoff

electromagnet Volt: 12

Full-load speed regulation

1/min: 2575 Speed Charge press hPa: 1000

Del. quantity cm3/

1000s.: 12.00...16.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 150 Del. quantity cm3/: 37.00...67.00

mind 1000s.: 37.00

Shutoff

electromagnet Volt: 12

N21

Shutoff Load-dependent start of delivery: electromagnet Volt: 12 Inj.-uty.dif.measurement: Overlow quantity at overflow valve: 1/min: 1250 Speed Inj.-aty. cm3/ difference 1000s.: -11.0...-15.0 # 1st speed 1/min: 500 Charge press. hPa: 1000 Shutoff Shutoff electromagnet Volt: 12 TD-travel dif.measurement electromagnet Volt: 12 : 41.70...83.40 Overflow correttore anticipo iniezione (SV) 1. Speed 1/min: 1250 quantity cm3/10s: (26.70...98.40) 2nd speed 1/min: 2150 Charge press. hPa: 1000 Shutoff TD-travel difference mm: -0.9...-1.1 # Shutoff electromagnet Volt: 12 Overflow : 55.60...139.00 electromagnet Volt: 12 cm3/10s: (40.60...154.00) quantity Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1/min: 750 1nd speed 2nd speed 1/min: 2000 Charge-air pressure-setting hPa: 1000 Charge press hPa: 350 point mm: 6.10...6.90 mm: (5.80...7.20) îD travel mm: 5.9 LDA-stroke Shutoff Shutoff electromagnet Volt: 12
3rd speed 1/min: 1250
Charge press hPa: 1000
TD travel mm: 3.40...3.80 Charge press. hPa: 1000 mm: (2.90...4.30) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 0.00...6.00 1000S.: (0.00...6.00) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press hPa: 1000 1/min: 2575 5th speed Charge press. hPa: 1000 Shutoff TD travel mm: 1.10...1.90 mm: (0.80...2.20) Shutoff electromagnet Volt: 12 Supply-pump pressure characteristic: Charge press. hPa: 1000 Shutoff 1st speed 1/min: 750 electromagnet Volt: 12
Del. quantity cm3/: 33.00...43.00
10005.: (32.00...44.00) Charge press. hPa: 1000 Supply-pump bar: 4.40...5.00 pressure Shutoff 1/min: 2150 9th speed electromagnet Volt: 12 2nd speed 1/min: 1250 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 49.50...51.50
1000S.: (48.30...52.70)
10th speed 1/min: 2000 Charge press. hPa: 1000 Supply-pump pressure bar: 5.60...6.20 Shutoff electromagnet Volt: 12 3rd speed 1/min: 2000 Charge press. hPa: 1000 Charge press. hPa: 1000 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 51.00...53.00 1000s.: (49.80...54.20) Supply-pump bar: 7.30...7.90 pressure 12th speed 1/min: 1250

	12 53.5054.50 (51.8056.20)	† † † † †	Shutoff electromagnet Volt: 12 Del. quantity cm3/: 6.007.00 1000S.: (4.508.50)
18th speed 1/min: Charge press. hPa: Shutoff	_	†	Load-dependent start of delivery: Injqty.dif.measurement:
	37.5038.50 (35.0041.00)	† †	1st speed
20th speed 1/min: Charge press. hPa: Shutoff	1000	+++++++++++++++++++++++++++++++++++++++	Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250
electromagnet Volt: Del. quantity cm3/: 1000s.:		+++++++++++++++++++++++++++++++++++++++	Injqty. cm3/: +0.2+8.0 Z' difference 1000S:: - Shutoff
Mech. shutoff: Mech. Abstellung:		+	electromagnet Volt: 12 TD-travel dif.measurement:
1st speed 1/min: Charge press. hPa: Del. quantity cm3/:	1000	++++	correttore anticipo iniezione (SV): 1st speed
1000s.: Shutoff electromagnet volt:	(0.003.00)	+	Shutoff electromagnet Volt: 12
Electr. shutoff:		†	SP pressdif.measurement: pompa di mandata (FP): 1st speed 1/min: 1250
1st speed 1/min: Del. quantity cm3/:	0.003.00	+	Supply pump- pressure : -0.10.3 "
1000S.: Shutoff electromagnet volt:	(0.00. 2.3.00)	‡	difference bar: - Shutoff electromagnet Volt: 12
Damper set qty.:		+	2nd speed 1/min: 1250 Supply pump-
LFG-setting: solidate con carcass Idle delivery:	sa:	†	pressure : -0.91.3 ' difference bar: - Shutoff electromagnet Volt: 12
•		Ŧ	
1st speed 1/min: Shutoff electromagnet Volt:	,	‡	Part-load del.at 3rd injqty. terza fermo della portata stop (EGR set)
Del. quantity cm3/:		+	scarico) (ARF) gaz d'échappement-ARF)
High Idle:		Ŧ	
1st speed 1/mi: Shutoff		‡	1st speed 1/min: 1250 Charge press. hPa: 1000 Shutoff
electromagnet Volt: Del. quantity cm3/: 1000S.:		+++++++++++++++++++++++++++++++++++++++	electromagnet Volt: 12 Del. quantity cm3/: 16.8018.80 1000S.: (13.8021.80)
Residual:		Ī	Automatic starting fuel delivery:
1.Rotacao 1/min:	500	+	2nd speed 1/min: 380

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 25.00...45.00 1000s.: (25.00...45.00)

1/min: 200 3rd speed

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 50.00...56.00 1000s.: (45.50...60.50)

1/min: 150 4th speed

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 37.00...67.00 1000s.: (37.00...67.00)

Shutoff electromagnet:

Cut-in

: 10.0 min voltage Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

mm: 3.2...3.4 KF mm: KOT mm: 1.1...1.5 mm: 5.9 MS

LDA stroke

mm: 28.8...32.8 Ya Yb mm: 67.0...81.0

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.

Note inst. in remarks column

Test scheet : VWW Edition : 03.94 replaces

Calibrating oil : ISO-4113

Injection pump : VE4/9F2300R433-2 Type number : 0 460 494 346

Customer Part-No. :

Customer-specific information

Customer

: 1,9 L UD A3 Engine

TEST BENCH REQUIREMENTS

Calibrating-oil return temp.

with thermometer : 40.00...48.00 Electronically: 42.00...50.00

Inlet press., bar: 0.30...0.40

Calibrating nozzle-holder

assembly : 1 688 901 000

Openina

Pressure bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00 x Wall thickness : 2.00 mm: 840 x Length

Start of delivery Prestroke mm: -(from BDC): -

Injection-pump setting values Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250 Charge press. hPas 750

Setting value mmt 4.30...4.50

Shutoff

electromagnet Volt: 12

Supply-pump pressure

1/min: 1250 Speed hPa: 750 Charge press

Setting value bar: 5.40...6.00

electromagnet Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1250 Charge press. hPa: 750

Del. quantity cm3/ 1000s.: 50.00...51.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.5 1000s.: (3.0)

Full-load del. w/out charge press.:

1/min: 450 Speed

Del. quantity cm3/

1000s.: 37.20...43.20

Shutoff

electromagnet Volt: 12

Low-idle speed regulation

Speed 1/min: 450

Del. quantity cm3/

1000s.: 16.00...18.00

Shutoff

electromagnet Volt: 12 Del. quantity cm3/: 2.0

Residual-Delivery Setting

Speed 1/min: 550

Del. quantity cm3/

1000s.: 7.00...8.00

Shutoff

electromagnet Volt: 12 Dispersion cm3/: 2.01000s.: (3.0)

Full-load speed regulation

Speed 1/min: 2600 Charge press hPa: 750 Del. quantity cm3/ 1000s.: 9.00...13.00

Shutoff

electromagnet Volt: 12

Start:

Speed 1/min: 100 Del. quantity cm3/: 37.00...43.00 mind 1000s.: 37.0

Shutoff

electromagnet Volt: 12

Shutoff Load-dependent start of delivery: electromagnet Volt: 12 Inj.-qty.dif.measurement: Overlow quantity at overflow valve: Speed 1/min: 1250 Charge press. hPa: 750 Shutoff Inj.-qty. cm3/ difference 1000S.: -8.0...-12.0 # Shutoff electromagnet Volt: 12 TD-travel dif.measurement electromagnet Volt: 12 : 41.70...83.40 Overflow correttore anticipo iniezione (SV) 1.Speed 1/min: 1250 cm3/10s: (26.70...98.30) quantity 2nd speed 1/min: 2100 TD-travel Charge press. hPa: 750 difference mm: -0.5...-0.7 # Shutoff electromagnet Volt: 12 Overflow : 55.60...152.90 Shutoff electromagnet Volt: 12 quantity cm3/10s: (40.60...167.90) Inspection-pump test specifications Test specifications in parentheses Delivery-quant. and breakaway char.: Timing-device characteristic: 1/min: 2750 2nd speed 2nd speed Charge press. hPa: 750 Shutoff 1/min: 2100 hPa: 750 Charge press electromagnet Volt: 12
Del. quantity cm3/: 0.00...3.00
1000S.: (0.00...3.00)
5th speed 1/min: 2600
Charge press. hPa: 750 mm: 8.00...8.60 TD travel mi: (7.50...9.10) Shutoff electromagnet Volt: 12 3rd speed 1/min: 1250 Charge press hPa: 750 Shutoff electromagnet Volt: 12
Del. quantity cm3/: 9.00...13.00
1000S.: (7.00...15.00)
8th speed 1/min: 2400
Charge press. hPa: 750
Shutoff TD travel mm: 4.30...4.50 mm: (3.60...5.20) Shutoff electromagnet Volt: 12 4th speed 1/min: 750 Charge press hPa: 750 mm: 1.50...2.10 mm: (1.00...2.60) TD travel electromagnet Volt: 12 Del. quantity cm3/: 32.50...42.50 1000s.: (31.50...43.50) 1/min: 2100 Shutoff electromagnet Volt: 12 9th speed Charge press. hPa: 750 Supply-pump pressure characteristic: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 42.00...44.00 1000S.: (40.80...45.20) 1st speed 1/min: 750 Charge press. hPa: 750 Supply-pump 12th speed 1/min: 1250 Charge press. hPa: 750 pressure bar: 4.30...4.90 Shutoff Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 electromagnet Volt: 12 Del. quyntity cm3/: 50.00...51.00 Charge press. hPa: 750 1000s.: (48.30...52.70) Supply-pump 20th speed 1/min: 700 Charge press. hPa: 750 Shutoff pressure bar: 5.40...6.00 Shutoff electromagnet Volt: 12 Del. quantity cm3/: 43.50...46.50 1000s.: (42.80...47.20) electromagnet Volt: 12 3rd speed 1/min: 2100 Charge press. hPa: 750 Supply-pump 1/min: 450 21th speed

Charge press. hPa: -

pressure

bar: 7.40...8.00

Shutoff : -0.8...1.2 ' TD-travel electromagnet Volt: 12 Del. quantity cm3/: 37.20...43.20 1000s.: (34.70...45.70) difference mm: (-0.4...-1.6)Shutoff electromagnet Volt: 12 Mech. shutoff: SP press.-dif.measurement: pompa di mandata (FP): Electr. shutoff: 1st speed 1/min: 1250 Supply pump-1/min: 450 : -0.1...-0.3 " 1st speed pressure Del. quantity cm3/: 0.00...3.00 difference bar: -1000s.: (0.00...3.00) Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 Shutoff electromagnet volt: -Supply pump-Damper set qty.: pressure : -0.3...-0.7 ' difference bar: -LFG-setting: Shutoff solidale con carcassa: electromagnet Volt: 12 Idle delivery: Part-load del.at 3rd inj.-qty. terza fermo della portata stop (EGR set) scarico) (ARF) 1/min: 450 1st speed Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.00...18.00 1000s.: (13.00...21.00) gaz d'échappement-ARF) mm: 12.0 Spacing High Idle: 1st speed 1/min: 1000 Charge press. hPa: 750 Shutoff 1/mi: 550 1st speed electromagnet Volt: 12 Del. quantity cm3/: 34.00...36.00 1000s.: (32.00...38.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 16.00...18.00 1000s.: (13.00...21.00) Automatic starting fuel delivery: Residual: 1/min: 180 1st speed 1/min: 550 1.Rotacao Shutoff electromagnet Volt: 12 Del. quantity cm3/: 35.00...55.00 1000s.: (35.00...55.00) Shutoff electromagnet Volt: 12 Del. quantity cm3/: 7.00...8.00 1000s.: (5.50...9.50) 1/min: 380 2nd speed Load-dependent start of delivery: Shutoff electromagnet Volt: 12 Del. quantity cm3/: 31.00...51.00 1000s.: (31.00...51.00) Inj.-qty.dif.measurement: 1st speed 1/min: 1250 Inj.—qty. cm3/ : -7.0...-9.0 " difference 1000s.: -3rd speed 1/min: 100 Shutoff Shutoff electromagnet Volt: 12 2nd speed 1/min: 1250 electromagnet Volt: 12 Del. quantity cm3/: 37.00...43.00 cm3/: 0.0...+3.0 Z' 1000s.: (32.50...47.50) Inj.~aty. difference 1000s : -Shutoff Shutoff electromagnet: electromagnet Volt: 12 Cut-in TD-travel dif.measurement: min voltage : 10.0 correttore anticipo iniezione (SV): Rated voltage : 12.0 1st speed 1/min: 1250

Mounting and assembly dimensions:

Designation

K	mm: 3.63.8
KF	mm: KOT
MS	mm: 1.11.5
LDA stroke	mm: -
XK	mm: LP=0.83.0
Ya	mm: 37.641.6
Yb	mm: 50.463.3

Remarks:

Ya = Distance between VE flange and speed-control lever in idle position
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position Measurement point = edge of control lever on distributor-head end

Z = Absolute delivery

Pump in stepped LDA

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.